

SEQUENCE LISTING

<110> Sim, Gek-Kee
 Yang, Shumin
 Sellins, Karen S.

<120> NOVEL FORMS OF T CELL COSTIMULATORY PROTEINS, NUCLEIC
 ACID MOLECULES, AND USES THEREOF

<130> IM-1-C1-PCT

<140> not yet assigned

<141> 1999-03-19

<150> 60/078,765

<151> 1998-03-19

<150> 09/062,597

<151> 1998-04-17

<160> 65

<170> PatentIn Ver. 2.0

<210> 1

<211> 2830

<212> DNA

<213> Canis familiaris

<220>

<221> CDS

<222> (337)..(1248)

<400> 1

```

gtgctttgtc ctagccacac tctctgaggt ggctgacaaa aagggacagc agaaccagct 60
tcctcaagtt atacataaca tctacacatc ccctgctttg acttaaatac tgctggtaat 120
gaacatcagc tagatcttcc agcgagtaaa aggaagttgg aaaggggatt gcctctggta 180
tatcacccaa agaaaagctg agcaacttgc cattattttg gagacagcaa gaaaggaaca 240
tctcagaact ggggcctcat cctttgacgt tttgttttgt tttgttctaa cacaagaaaa 300
aaaaaaaaga ggagttatcc ttcagcagca gaagcc atg gat tac aca gcg aag 354
Met Asp Tyr Thr Ala Lys
1 5

```

tg	g	a	a	c	c	a	c	t	c	a	a	a	c	a	c	a	t	a	t	c	t	c	a	a	g	g	t	c	t	c	a	g	c	t	c		402	
Trp	Arg	Thr	Pro	Pro	Leu	Lys	His	Pro	Tyr	Leu	Lys	Val	Ser	Gln	Leu																							
					10					15																												
tt	g	g	t	a	g	c	t	c	t	t	t	t	a	c	t	t	c	t	g	t	t	c	a	g	g	c	a	t	c	a	t	c	a	g	g	t		450
Leu	Val	Leu	Ala	Ser	Leu	Phe	Tyr	Phe	Cys	Ser	Gly	Ile	Ile	Gln	Val																							
					25					30																												
aa	c	a	a	g	a	c	a	g	t	g	a	a	a	g	a	a	g	a	a	g	a	a	g	a	a	a	g	a	a	a	a	a	a	a	a	a		498
Asn	Lys	Thr	Val	Lys	Glu	Val	Ala	Val	Leu	Ser	Cys	Asp	Tyr	Asn	Ile																							
					40					45																												
tc	c	a	c	t	a	g	a	a	c	t	g	a	t	g	a	a	a	a	a	a	a	a	a	a	a	a	a	a	a	a	a	a	a	a	a		546	
Ser	Thr	Thr	Glu	Leu	Met	Lys	Val	Arg	Ile	Tyr	Trp	Gln	Lys	Asp	Asp																							
					55					60																												
ga	a	g	t	g	g	t	g	c	t	g	a	c	a	a	c	a	a	a	a	a	a	a	a	a	a	a	a	a	a	a	a	a	a	a	a		594	
Glu	Val	Val	Leu	Ala	Val	Thr	Ser	Gly	Gln	Thr	Lys	Val	Trp	Ser	Lys																							
					75					80																												
ta	t	g	a	a	t	c	g	c	a	c	c	t	t	t	g	c	t	a	g	a	c	c	a	a	a	a	a	a	a	a	a	a	a	a	a		642	
Tyr	Glu	Asn	Arg	Thr	Phe	Ala	Asp	Phe	Thr	Asn	Asn	Leu	Ser	Ile	Val																							
					90					95																												
at	t	a	t	g	g	c	t	g	c	g	c	t	g	t	c	a	g	a	c	a	a	a	a	a	a	a	a	a	a	a	a	a	a	a	a		690	
Ile	Met	Ala	Leu	Arg	Leu	Ser	Asp	Asn	Gly	Lys	Tyr	Thr	Cys	Ile	Val																							
					105					110																												
ca	a	a	a	g	a	a	a	a	a	a	a	a	a	a	a	a	a	a	a	a	a	a	a	a	a	a	a	a	a	a	a	a	a	a	a		738	
Gln	Lys	Thr	Glu	Lys	Arg	Ser	Tyr	Lys	Val	Lys	His	Met	Thr	Ser	Val																							
					120					125																												
at	g	t	t	a	t	t	g	t	c	a	g	c	t	g	a	g	a	a	a	a	a	a	a	a	a	a	a	a	a	a	a	a	a	a	a		786	
Met	Leu	Leu	Val	Arg	Ala	Asp	Phe	Pro	Val	Pro	Ser	Ile	Thr	Asp	Leu																							
					135					140																												
gg	a	a	t	c	c	a	t	c	c	a	t	g	a	c	a	a	a	a	a	a	a	a	a	a	a	a	a	a	a	a	a	a	a	a	a		834	
Gly	Asn	Pro	Ser	His	Asp	Ile	Lys	Arg	Ile	Met	Cys	Ser	Thr	Ser	Gly																							
					155					160																												
gg	t	t	t	c	c	a	a	a	a	a	a	a	a	a	a	a	a	a	a	a	a	a	a	a	a	a	a	a	a	a	a	a	a	a	a		882	
Gly	Phe	Pro	Lys	Pro	His	Leu	Ser	Trp	Trp	Glu	Asn	Glu	Glu	Glu	Leu																							
					170					175																												
aa	t	g	c	t	g	c	c	a	a	c	a	a	a	a	a	a	a	a	a	a	a	a	a	a	a	a	a	a	a	a	a	a	a	a	a		930	
Asn	Ala	Ala	Asn	Thr	Thr	Val	Ser	Gln	Asp	Pro	Asp	Thr	Glu	Leu	Tyr																							
					185					190																												

act att agt agt gaa ctg gat ttc aat ata aca agc aac cat agc ttt 978
 Thr Ile Ser Ser Glu Leu Asp Phe Asn Ile Thr Ser Asn His Ser Phe
 200 205 210

gtg tgt ctt gtc aag tat gga gac tta aca gta tca cag atc ttc aac 1026
 Val Cys Leu Val Lys Tyr Gly Asp Leu Thr Val Ser Gln Ile Phe Asn
 215 220 225 230

tgg caa aaa tca gtc gag cca cac cct ccc aat aac cag caa cag ctc 1074
 Trp Gln Lys Ser Val Glu Pro His Pro Pro Asn Asn Gln Gln Gln Leu
 235 240 245

tgg gtc atc ctg atc tta gta gta agt ggt gtg att gct gtg atc act 1122
 Trp Val Ile Leu Ile Leu Val Val Ser Gly Val Ile Ala Val Ile Thr
 250 255 260

gcc att aca gga ggc tgc cta gcc cac aga tct gct gca aga tgg aga 1170
 Ala Ile Thr Gly Gly Cys Leu Ala His Arg Ser Ala Ala Arg Trp Arg
 265 270 275

cag aga aat agg aac aaa gag gac atg gac ctg gaa aag atg tcc cct 1218
 Gln Arg Asn Arg Asn Lys Glu Asp Met Asp Leu Glu Lys Met Ser Pro
 280 285 290

ata aac ata gga tct gcc caa gca tct gta tgagcagaac atctggaggt 1268
 Ile Asn Ile Gly Ser Ala Gln Ala Ser Val
 295 300

cccacctcca tcttagattg acctcatctt tgaatttcct cagatggcca ggattatccc 1328
 accttgcaact tcatgcatct gttctctagg agcctgttca tttcagtggc cctgcagaaa 1388
 gtgaccagag gaatatggtg gggacataag tagctctctg gtagccttgg tcaaagaatt 1448
 gttcaggcct gggaagagac attcggaaaa tacttgtctc attaatagaca aggacatcaa 1508
 ggcctagggg gtgacctgaa tgataaaggt ctgagctaga acccagattt cctgtctcgg 1568
 gtgctctttt ccatcagtag tccggctctg tgctattaac tgggtgtgtac aggtgtacac 1628
 accagtcaaa atgcttcttg aaaaagagta tgtccaatgt cagggtcaact tcagagactt 1688
 catctgatgc aacactagaa ggttttgtgt tgctgtcaaa agcaatctga tgctaattgtg 1748
 tggtagtatg atggtatata taccaatatg agaattgatgg aaaaattact ggggtttact 1808
 cagtatctca tctttcattg tgttctctc tggtgctttc ccacttctcc atcaggttct 1868

ggagaaaagta gatctatcca aaactaatat ctgctgacat gtaagatgaa tgacttatat 1928
 acctcaaagc gatagtcacg ttggagaggg ataggttggt ttagagagtc acatcctact 1988
 ggttcatatt ggactgataa tctccttaat ggctttatgc tagtttaaac tcatttataa 2048
 aacatgagaa agttctcatt taaaatgaga taggttttaa ttgtatatta ctaaacagat 2108
 attactaaac agtagctgtc cttagaattt gattgaggta atgaaaatag cattccatag 2168
 ggtttcccta gattcctcaa gttgctcttc ctccttggtt tttctgatcc ttctgacatc 2228
 agcagagaat taaaaataaa gaagtggcca actgccgttc ctgtgtcact tactcatgat 2288
 tcctttctct gaagttgtct tccataactc agtggacctg gaggtagacc tgactggagg 2348
 aatcagacat tctcatttga aaatttgacg ttggacagca agttggccaa gtttctcaca 2408
 tgtagctggg tttaaatgt ttaattttgg cagctatcaa gggaccagat tatgctatat 2468
 agtctaagga gcagaagtac agttttaaat ggttgccctc agaacaaaat cactgaaaga 2528
 aataaaagtt ggagactgac ctgaactcaa agcaaagaaa caaaaaaat gggaactgct 2588
 gcatttaatt aaaattaata atccttagac atgctcaaaa ggagacctca agaagtaatc 2648
 acaaaatagg acacatctag gagacagctt atttatactt aaaataaatt atattacatt 2708
 acttattaca ttgataaat gtgttggtac tattttccaa agaattatac ttttattgat 2768
 atttttgtga tatgaataaa attattttta aaaccaaaaa aaaaaaaaaa aaaaaaaaaa 2828
 aa 2830

<210> 2

<211> 304

<212> PRT

<213> Canis familiaris

<400> 2

Met Asp Tyr Thr Ala Lys Trp Arg Thr Pro Pro Leu Lys His Pro Tyr
 1 5 10 15

Leu Lys Val Ser Gln Leu Leu Val Leu Ala Ser Leu Phe Tyr Phe Cys
 20 25 30

Ser Gly Ile Ile Gln Val Asn Lys Thr Val Lys Glu Val Ala Val Leu

35	40	45
Ser Cys Asp Tyr Asn Ile Ser Thr Thr Glu Leu Met Lys Val Arg Ile		
50	55	60
Tyr Trp Gln Lys Asp Asp Glu Val Val Leu Ala Val Thr Ser Gly Gln		
65	70	75
Thr Lys Val Trp Ser Lys Tyr Glu Asn Arg Thr Phe Ala Asp Phe Thr		
85	90	95
Asn Asn Leu Ser Ile Val Ile Met Ala Leu Arg Leu Ser Asp Asn Gly		
100	105	110
Lys Tyr Thr Cys Ile Val Gln Lys Thr Glu Lys Arg Ser Tyr Lys Val		
115	120	125
Lys His Met Thr Ser Val Met Leu Leu Val Arg Ala Asp Phe Pro Val		
130	135	140
Pro Ser Ile Thr Asp Leu Gly Asn Pro Ser His Asp Ile Lys Arg Ile		
145	150	155
Met Cys Ser Thr Ser Gly Gly Phe Pro Lys Pro His Leu Ser Trp Trp		
165	170	175
Glu Asn Glu Glu Glu Leu Asn Ala Ala Asn Thr Thr Val Ser Gln Asp		
180	185	190
Pro Asp Thr Glu Leu Tyr Thr Ile Ser Ser Glu Leu Asp Phe Asn Ile		
195	200	205
Thr Ser Asn His Ser Phe Val Cys Leu Val Lys Tyr Gly Asp Leu Thr		
210	215	220
Val Ser Gln Ile Phe Asn Trp Gln Lys Ser Val Glu Pro His Pro Pro		
225	230	235
Asn Asn Gln Gln Gln Leu Trp Val Ile Leu Ile Leu Val Val Ser Gly		
245	250	255
Val Ile Ala Val Ile Thr Ala Ile Thr Gly Gly Cys Leu Ala His Arg		
260	265	270
Ser Ala Ala Arg Trp Arg Gln Arg Asn Arg Asn Lys Glu Asp Met Asp		
275	280	285
Leu Glu Lys Met Ser Pro Ile Asn Ile Gly Ser Ala Gln Ala Ser Val		

290

295

300

<210> 3

<211> 2830

<212> DNA

<213> *Canis familiaris*

<400> 3

```

tttttttttt tttttttttt ttttttttgt tttaaaaata attttattca tatcacaaaa 60
atatcaataa aagtataatt ctttggaata tagtaccaac acatttatca aatgtaataa 120
gtaatgtaat ataatttatt ttaagtataa ataagctgtc tcctagatgt gtcctatttt 180
gtgattactt cttgaggtct ccttttgagc atgtctaagg attattaatt ttaattaaat 240
gcagcagttc ccattttttt tgtttctttg ctttgagttc aggtcagttc ccaactttta 300
tttctttcag tgatttttgt ctgagggcaa ccatttaaaa ctgtacttct gtccttaga 360
ctatatagca taatctgggc ccttgatagc tgccaaaatt aaacattgta aaccagcta 420
catgtgagaa acttggccaa cttgctgtcc aacgtcaaat tttcaaatga gaatgtctga 480
ttcctccagt caggtctacc tccaggtcca ctgagttatg gaagacaact tcagagaaag 540
gaatcatgag taagtgcac aggaacggca gttggccact tctttatttt taattctctg 600
ctgatgtcag aaggatcaga aataccaagg aggaagagca acttgaggaa tctagggaaa 660
ccctatggaa tgctattttc attacctcaa tcaaattcta aggacagcta ctgttttagta 720
atatctgttt agtaatatat aattaaaacc tatctcattt taaatgagaa ctttctcatg 780
ttttataaat gaggtttaac tagcataaag ccattaagga gattatcagt ccaatatgaa 840
ccagtaggat gtgactctct aaaccaacct atccctctcc aacgtgacta tcgctttgag 900
gtatataagt cattcatctt acatgtcagc agatattagt ttggataga tctactttct 960
ccagaacctg atggagaagt gggaaagcaa cagaggagaa cacaatgaaa gatgagatac 1020
tgagtaaacc ccagtaattt ttccatcatt ctcatattgg tatatatacc atcactactac 1080
cacacattag catcagattg cttttgacag caacacaaaa ccttctagtg ttgcatcaga 1140
tgaagtctct gaagttgacc tgacattgga cataactctt ttccagaagc attttgactg 1200

```

gtgtgtacac ctgtacacac cagttaatag cacagagccg gactactgat ggaaaagagc 1260
acccgagaca ggaaatctgg gttctagctc agacctttat cattcagggtc accccctagg 1320
ccttgatgtc cttgtcatta atgagacaag tattttccga atgtctcttc ccaggcctga 1380
acaattcttt gaccaaggct accagagagc tacttatgtc cccaccatat tcctctgggtc 1440
actttctgca gggccactga aatgaacagg ctccctagaga acagatgcat gaagtgaag 1500
gtgggataat cctggccatc tgaggaaatt caaagatgag gtcaatctaa gatggagggtg 1560
ggacctccag atgttctgct catacagatg cttgggcaga tcctatgttt ataggggaca 1620
tcttttccag gtccatgtcc tctttgttcc tatttctctg tctccatctt gcagcagatc 1680
tgtgggctag gcagcctcct gtaatggcag tgatcacagc aatcacacca cttactacta 1740
agatcaggat gaccagagc tgttgctggt tattgggagg gtgtggctcg actgattttt 1800
gccagttgaa gatctgtgat actgttaagt ctccatactt gacaagacac acaaagctat 1860
ggttgcttgt tatattgaaa tccagttcac tactaatagt gtacaactca gtgtccgggt 1920
cttgggaaac tggtgtgttg gcagcattca attcttcttc attttccac caggagaggt 1980
gaggcttttg aaaacctcca gaggttgaac acattatcct tttgatgtca tgggatggat 2040
ttccaagggtc agttatacta gggacagggg agtcagctct gaccaataac atcaccgaag 2100
tcatgtgttt cactttgtaa gacctttttt cagtcttttg aacgatacag gtgtatttgc 2160
cattgtctga caggcgcaga gccataatca cgatggagag gttattggtg aagtcagcaa 2220
aggtgcgatt ctcatcttg gaccacactt tcgtttgtcc agatgtgaca gccagcacca 2280
cttcatcatc cttttgcaa tagattcgaa ctttcatcag ttctgtagtg gaaatgttgt 2340
aatcacagga cagtactgct acttctttca ctgtcttgtt cacctggatg atgcctgaac 2400
agaagtaaaa gagactagct agcaccaaga gctgagagac cttgagatat ggggtgttga 2460
gtggtggtgt tctccacttc gctgtgtaat ccatggcttc tgctgctgaa ggataactcc 2520
tctttttttt ttttcttggt ttagaacaaa acaaaacaaa acgtcaaagg atgaggcccc 2580
agttctgaga tgttccttct ttgctgtctc caaaataatg gcaagttgct cagcttttct 2640

ttgggtgata taccagaggc aatccccttt ccaacttcct tttactcgct ggaagatcta 2700
 gctgatgttc attaccagca gtatttaagt caaagcaggg gatgtgtaga tggtatgtat 2760
 aacttgagga agctgggtct gctgtccctt tttgtcagcc acctcagaga gtgtggctag 2820
 gacaaagcac 2830

<210> 4
 <211> 912
 <212> DNA
 <213> Canis familiaris

<400> 4
 atggattaca cagcgaagtg gagaacacca ccactcaaac acccatatct caaggtctct 60
 cagctcttgg tgctagctag tctcttttac ttctgttcag gcatcatcca ggtgaacaag 120
 acagtgaaag aagtagcagt actgtcctgt gattacaaca tttccactac agaactgatg 180
 aaagttcgaa tctattggca aaaggatgat gaagtgggtg tggctgtcac atctggacaa 240
 acgaaagtgt ggtccaagta tgagaatcgc accttgctg acttcaccaa taacctctcc 300
 atcgtgatta tggctctgcg cctgtcagac aatggcaa atacactgtat cgttcaaaag 360
 actgaaaaaa ggtcttacia agtgaaacac atgacttcgg tgatgttatt ggtcagagct 420
 gacttccttg tccctagtat aactgacctt ggaaatccat cccatgacat caaaaggata 480
 atgtgttcaa cctctggagg ttttccaaag cctcacctct cctgggtggga aaatgaagaa 540
 gaattgaatg ctgccaacac aacagtttcc caagaccgga aactgagtt gtacactatt 600
 agtagtgaac tggatttcaa tataacaagc aaccatagct ttgtgtgtct tgtcaagtat 660
 ggagacttaa cagtatcaca gatcttcaac tggcaaaaat cagtcgagcc acaccctccc 720
 aataaccagc aacagctctg ggtcatcctg atcttagtag taagtgggtg gattgctgtg 780
 atcactgcca ttacaggagg ctgcctagcc cacagatctg ctgcaagatg gagacagaga 840
 aataggaaca aagaggacat ggacctggaa aagatgtccc ctataaacat aggatctgcc 900
 caagcatctg ta 912

<210> 5

<211> 912

<212> DNA

<213> Canis familiaris

<400> 5

tacagatgct tgggcagatc ctatgtttat aggggacatc ttttccaggt ccatgtcctc 60
 tttgttcta tttctctgtc tccatcttgc agcagatctg tgggctaggc agcctcctgt 120
 aatggcagtg atcacagcaa tcacaccact tactactaag atcaggatga cccagagctg 180
 ttgctgggta ttgggagggg gtggctcgac tgatttttgc cagttgaaga tctgtgatac 240
 tgttaagtct ccatacttga caagacacac aaagctatgg ttgcttggtta tattgaaatc 300
 cagttcacta ctaatagtgt acaactcagt gtccgggtct tgggaaactg ttgtgttggc 360
 agcattcaat tcttcttcat tttcccacca ggagaggtga ggctttggaa aacctccaga 420
 ggttgaacac attatccttt tgatgtcatg ggatggattt ccaaggtcag ttatactagg 480
 gacaggggaag tcagctctga ccaataacat caccgaagtc atgtgtttca ctttgaaga 540
 ccttttttca gtcttttgaa cgatacaggt gtatttgcca ttgtctgaca ggcgcagagc 600
 cataatcacg atggagaggt tattggtgaa gtcagcaaag gtgcgattct catacttgga 660
 ccacactttc gtttgtccag atgtgacagc cagcaccact tcatcatcct tttgccaata 720
 gattcgaact ttcacagtt ctgtagtgga aatgttgtaa tcacaggaca gtactgctac 780
 ttctttcact gtcttggtca cctggatgat gcctgaacag aagtaaaaga gactagctag 840
 caccaagagc tgagagacct tgagatatgg gtgtttgagt ggtggtgttc tccacttcgc 900
 tgtgtaatcc at 912

<210> 6

<211> 1897

<212> DNA

<213> Canis familiaris

<220>

<221> CDS

<222> (6) .. (992)

<400> 6

ccaag atg tat ctc aga tgc act atg gaa ctg aat aac att ctc ttt gtg 50

Met Tyr Leu Arg Cys Thr Met Glu Leu Asn Asn Ile Leu Phe Val

1

5

10

15

atg acc ctc ctg ctc tat ggt gct gct tcc atg aag agt caa gca tat 98

Met Thr Leu Leu Leu Tyr Gly Ala Ala Ser Met Lys Ser Gln Ala Tyr

20

25

30

ttc aac aag act gga gaa ctg cca tgc cat ttt aca aat tct caa aac 146

Phe Asn Lys Thr Gly Glu Leu Pro Cys His Phe Thr Asn Ser Gln Asn

35

40

45

ata agc ctg gat gag ttg gta gtg ttt tgg cag gac cag gat aag ctg 194

Ile Ser Leu Asp Glu Leu Val Val Phe Trp Gln Asp Gln Asp Lys Leu

50

55

60

gtt ctg tac gag cta tac aga ggc aaa gag aac cct caa aat gtt cat 242

Val Leu Tyr Glu Leu Tyr Arg Gly Lys Glu Asn Pro Gln Asn Val His

65

70

75

cgc aag tat aag ggc cgc aca agc ttt gac aaa gac aat tgg acc ctg 290

Arg Lys Tyr Lys Gly Arg Thr Ser Phe Asp Lys Asp Asn Trp Thr Leu

80

85

90

95

aga ctc cat aat att cag atc aag gac aag ggc ttg tat caa tgt ttc 338

Arg Leu His Asn Ile Gln Ile Lys Asp Lys Gly Leu Tyr Gln Cys Phe

100

105

110

gtt cat cat aaa ggg ccc aaa gga ctc gtt ccc atg cac cag atg aat 386

Val His His Lys Gly Pro Lys Gly Leu Val Pro Met His Gln Met Asn

115

120

125

tct gac cta tca gtg ctt gct aac ttc agt caa cct gaa ata atg gta 434

Ser Asp Leu Ser Val Leu Ala Asn Phe Ser Gln Pro Glu Ile Met Val

130

135

140

act tct aat aga aca gaa aat tct ggc atc ata aat ttg acc tgc tca 482

Thr Ser Asn Arg Thr Glu Asn Ser Gly Ile Ile Asn Leu Thr Cys Ser

145

150

155

tcc ata caa ggt tac cca gaa ccc aag gag atg tat ttt ttg gta aaa 530

Ser Ile Gln Gly Tyr Pro Glu Pro Lys Glu Met Tyr Phe Leu Val Lys

160

165

170

175

acc gag aat tca agt act aag tat gat act gtc atg aag aaa tct caa 578

Thr Glu Asn Ser Ser Thr Lys Tyr Asp Thr Val Met Lys Lys Ser Gln

180	185	190	
aat aat gtc aca gaa ctc tac aac gtt tct atc agc ttg tcc ttc tca			626
Asn Asn Val Thr Glu Leu Tyr Asn Val Ser Ile Ser Leu Ser Phe Ser			
195	200	205	
gtc cct gaa gca agc aat gtg agc atc ttc tgt gtc ctg caa ctt gag			674
Val Pro Glu Ala Ser Asn Val Ser Ile Phe Cys Val Leu Gln Leu Glu			
210	215	220	
tca atg aag ctt ccc tcc cta cct tat aat ata gat gca cat acg aaa			722
Ser Met Lys Leu Pro Ser Leu Pro Tyr Asn Ile Asp Ala His Thr Lys			
225	230	235	
ccc acc cct gat gga gac cac atc ctc tgg att gcg gct ctg ctt gta			770
Pro Thr Pro Asp Gly Asp His Ile Leu Trp Ile Ala Ala Leu Leu Val			
240	245	250	255
atg ttg gtc att ttg tgt ggg atg gtg ttc ttt cta aca cta agg aaa			818
Met Leu Val Ile Leu Cys Gly Met Val Phe Phe Leu Thr Leu Arg Lys			
260	265	270	
agg aag aag aag cag cct ggc ccc tct cat gaa tgt gaa acc aac aaa			866
Arg Lys Lys Lys Gln Pro Gly Pro Ser His Glu Cys Glu Thr Asn Lys			
275	280	285	
gtg gag aga aaa gaa agt gag cag acc aag gaa aga gta cgg tac cat			914
Val Glu Arg Lys Glu Ser Glu Gln Thr Lys Glu Arg Val Arg Tyr His			
290	295	300	
gaa acg gaa aga tct gat gaa gcc cag tgt gtt aac att tcg aag aca			962
Glu Thr Glu Arg Ser Asp Glu Ala Gln Cys Val Asn Ile Ser Lys Thr			
305	310	315	
gct tca ggc gac aac agt act aca cag ttt taattaaaga gtaaagtcca			1012
Ala Ser Gly Asp Asn Ser Thr Thr Gln Phe			
320	325		
tccattgttt atatgccttc cctttcaaatt tttggcttgc ctttttctcg tccattaata			1072
ttattattgc cactaataat aagaggcttt ccagggtccc ctctaaatga gagagcctcc			1132
ctataatgcc agttctgctc cctacaccag gagcagattt taactgcttc tttcatctc			1192
agagcacact tgtgggccat gctcacctga ctggctcctg gctcaggaat aatgtttaag			1252
actaacacct cctgtttcag attcagcctt cttttcttaa ttttatacat tgtgttttat			1312

gtagaactcc caattactgg actaatggct tttatctatg cttaattcta agatagtgcc 1372
 tcattccatc ttgtatattt gtgactacct ctgcagtctg ggtgggagtt ttgtatgtta 1432
 tggctttata gtgttgcttt aatattttga gacataaaga gatgtgtact ataataatgt 1492
 aattactatg ccctgagaaa attctaccca ctgctgagga gctcttgctc ctctgtgagg 1552
 gtcagtagca aaatggtggc ttggtgtgct gacaacaatg agcagaccaa ctcaaaattt 1612
 ggaagattag gaatgatgga gatagaacca gctctgagtc ctggagccac ttctatctgg 1672
 gctgctgcta atctgaggaa gatccacctg cctaacaagc tatggataag ccttagcagg 1732
 gagctctttg tgaagcagga aagcactatg cactgtgaac cctacttctc ttcttgaaaa 1792
 aaatggctga gatgatggct cagggcaact gttcaagagc caactgagag atcacaatac 1852
 ttaaaagaga aaaaagaaaa aagaaaaaaa aaaaaaaaaa aaaaa 1897

<210> 7

<211> 329

<212> PRT

<213> Canis familiaris

<400> 7

Met	Tyr	Leu	Arg	Cys	Thr	Met	Glu	Leu	Asn	Asn	Ile	Leu	Phe	Val	Met
1				5					10					15	

Thr	Leu	Leu	Leu	Tyr	Gly	Ala	Ala	Ser	Met	Lys	Ser	Gln	Ala	Tyr	Phe
			20					25					30		

Asn	Lys	Thr	Gly	Glu	Leu	Pro	Cys	His	Phe	Thr	Asn	Ser	Gln	Asn	Ile
			35				40					45			

Ser	Leu	Asp	Glu	Leu	Val	Val	Phe	Trp	Gln	Asp	Gln	Asp	Lys	Leu	Val
	50					55					60				

Leu	Tyr	Glu	Leu	Tyr	Arg	Gly	Lys	Glu	Asn	Pro	Gln	Asn	Val	His	Arg
65					70				75					80	

Lys	Tyr	Lys	Gly	Arg	Thr	Ser	Phe	Asp	Lys	Asp	Asn	Trp	Thr	Leu	Arg
			85						90				95		

Leu	His	Asn	Ile	Gln	Ile	Lys	Asp	Lys	Gly	Leu	Tyr	Gln	Cys	Phe	Val
			100					105					110		

His His Lys Gly Pro Lys Gly Leu Val Pro Met His Gln Met Asn Ser
 115 120 125
 Asp Leu Ser Val Leu Ala Asn Phe Ser Gln Pro Glu Ile Met Val Thr
 130 135 140
 Ser Asn Arg Thr Glu Asn Ser Gly Ile Ile Asn Leu Thr Cys Ser Ser
 145 150 155 160
 Ile Gln Gly Tyr Pro Glu Pro Lys Glu Met Tyr Phe Leu Val Lys Thr
 165 170 175
 Glu Asn Ser Ser Thr Lys Tyr Asp Thr Val Met Lys Lys Ser Gln Asn
 180 185 190
 Asn Val Thr Glu Leu Tyr Asn Val Ser Ile Ser Leu Ser Phe Ser Val
 195 200 205
 Pro Glu Ala Ser Asn Val Ser Ile Phe Cys Val Leu Gln Leu Glu Ser
 210 215 220
 Met Lys Leu Pro Ser Leu Pro Tyr Asn Ile Asp Ala His Thr Lys Pro
 225 230 235 240
 Thr Pro Asp Gly Asp His Ile Leu Trp Ile Ala Ala Leu Leu Val Met
 245 250 255
 Leu Val Ile Leu Cys Gly Met Val Phe Phe Leu Thr Leu Arg Lys Arg
 260 265 270
 Lys Lys Lys Gln Pro Gly Pro Ser His Glu Cys Glu Thr Asn Lys Val
 275 280 285
 Glu Arg Lys Glu Ser Glu Gln Thr Lys Glu Arg Val Arg Tyr His Glu
 290 295 300
 Thr Glu Arg Ser Asp Glu Ala Gln Cys Val Asn Ile Ser Lys Thr Ala
 305 310 315 320
 Ser Gly Asp Asn Ser Thr Thr Gln Phe
 325

<210> 8

<211> 1897

<212> DNA

<213> Canis familiaris

<400> 8

tttttttttt tttttttttt ttcttttttc ttttttctct ttttaagtatt gtgatctctc 60
agttggctct tgaacagttg ccctgagcca tcatctcagc catttttttc aagaagagaa 120
gtagggttca cagtgcatag tgctttcctg cttcaciaaag agctccctgc taaggcttat 180
ccatagcttg ttaggcaggt ggatcttctc cagattagca gcagcccaga tagaagtggc 240
tccaggactc agagctgggt ctatctccat cattcctaatt cttccaaatt ttgagttggt 300
ctgctcattg ttgtcagcac accaagccac catttttcgta ctgaccctca cagaggagca 360
agagctcctc agcagtggtt agaattttct cagggcatag taattacatt attatagtac 420
acatctcttt atgtctcaaa atattaaagc aacactataa agccataaca taaaaactc 480
ccaccagac tgcagaggta gtcaciaaata tacaagatgg aatgaggcac tatcttagaa 540
ttaagcatag ataaaagcca ttagtccagt aattgggagt tctacataaa acacaatgta 600
taaaattaag aaaagaaggc tgaatctgaa acaggagggtg ttagtcttaa acattattcc 660
tgagccagga gccagtcagg tgagcatggc ccacaagtgt gctctgagat gaaaagaagc 720
agttaaaatc tgctcctggt gtagggagca gaactggcat tatagggagg ctctctcatt 780
tagaggggagc cctggaaagc ctcttattat tagtggcaat aataatatta atggacgaga 840
aaaaggcaag ccaaaatttg aaagggaagg catataaaca atggatggac tttactcttt 900
aattaaaact gtgtagtact gttgtcgcct gaagctgtct tcgaaatgtt aacacactgg 960
gcttcacag atctttccgt ttcattggtac cgtactcttt ccttggtctg ctcactttct 1020
tttctctcca ctttgttggt ttcacattca tgagaggggc caggctgctt cttcttcctt 1080
ttccttagtg ttagaaagaa caccatccca cacaaaatga ccaacattac aagcagagcc 1140
gcaatccaga ggatgtggtc tccatcaggg gtgggtttcg tatgtgcac tatattataa 1200
ggtagggagg gaagcttcat tgactcaagt tgcaggacac agaagatgct cacattgctt 1260
gcttcaggga ctgagaagga caagctgata gaaacgttgt agagttctgt gacattattt 1320
tgagatttct tcatgacagt atcatactta gtacttgaat tctcggtttt taccaaaaaa 1380
tacatctcct tgggttctgg gtaaccttgt atggatgagc aggtcaaatt tatgatgcca 1440

gaattttctg ttctattaga agttaccatt atttcaggtt gactgaagtt agcaagcact 1500
 gataggtcag aattcatctg gtgcatggga acgagtcctt tgggcccttt atgatgaacg 1560
 aaacattgat acaagccctt gtccttgatc tgaatattat ggagtctcag ggtccaattg 1620
 tctttgtcaa agcttgtgcg gcccttatac ttgcgatgaa cattttgagg gttctctttg 1680
 cctctgtata gctcgtacag aaccagctta tcttggctct gccaaaacac taccaactca 1740
 tccaggctta tgttttgaga atttgtaaaa tggcatggca gttctccagt cttgttgaaa 1800
 tatgcttgac tcttcatgga agcagcacca tagagcagga gggtcatcac aaagagaatg 1860
 ttattcagtt ccatagtga tctgagatac atcttgg 1897

<210> 9

<211> 987

<212> DNA

<213> *Canis familiaris*

<400> 9

atgtatctca gatgcactat ggaactgaat aacattctct ttgtgatgac cctcctgctc 60
 tatgggtgctg cttccatgaa gagtcaagca tatttcaaca agactggaga actgccatgc 120
 cattttacaa attctcaaaa cataagcctg gatgagttgg tagtgttttg gcaggaccag 180
 gataagctgg ttctgtacga gctatacaga ggcaaagaga accctcaaaa tgttcatcgc 240
 aagtataagg gccgcacaag ctttgacaaa gacaattgga ccttgagact ccataatatt 300
 cagatcaagg acaagggtt gtatcaatgt ttcgttcatc ataaagggcc caaaggactc 360
 gttcccatgc accagatgaa ttctgacctt tcagtgtctg ctaacttcag tcaacctgaa 420
 ataatggtaa cttctaatag aacagaaaat tctggcatca taaatttgac ctgctcatcc 480
 atacaagggtt acccagaacc caaggagatg tatttttttg taaaaaccga gaattcaagt 540
 actaagtatg atactgtcat gaagaaatct caaaataatg tcacagaact ctacaacgtt 600
 tctatcagct tgtccttctc agtccctgaa gcaagcaatg tgagcatctt ctgtgtcctg 660
 caacttgagt caatgaagct tccctcccta ccttataata tagatgcaca tacgaaaccc 720

acccctgatg gagaccacat cctctggatt gcggctctgc ttgtaatgtt ggtcattttg 780
 tgtgggatgg tgttctttct aacactaagg aaaaggaaga agaagcagcc tggcccctct 840
 catgaatgtg aaaccaacaa agtggagaga aaagaaagtg agcagaccaa ggaaagagta 900
 cgggtaccatg aaacggaaag atctgatgaa gcccagtgtg ttaacatttc gaagacagct 960
 tcaggcgaca acagtactac acagttt 987

<210> 10

<211> 987

<212> DNA

<213> *Canis familiaris*

<400> 10

aaactgtgta gtactgttgt cgctgaagc tgtcttcgaa atgttaacac actgggcttc 60
 atcagatctt tccgtttcat ggtaccgtac tctttccttg gtctgtcac tttcttttct 120
 ctccactttg ttggtttcac attcatgaga ggggccaggc tgctttcttct tctttttcct 180
 tagtgttaga aagaacacca tcccacacaa aatgaccaac attacaagca gagccgcaat 240
 ccagaggatg tggctctccat caggggtggg ttctgtatgt gcatctatat tataaggtag 300
 ggaggggaagc ttcattgact caagttgcag gacacagaag atgctcacat tgcttgcttc 360
 agggactgag aaggacaagc tgatagaaac gttgtagagt tctgtgacat tattttgaga 420
 tttcttcattg acagtatcat acttagtact tgaattctcg gtttttacca aaaaatacat 480
 ctctttgggt tctgggtaac cttgtatgga tgagcaggtc aaatttatga tgccagaatt 540
 ttctgttcta ttagaagtta ccattatttc aggttgactg aagttagcaa gcaactgatag 600
 gtcagaattc atctggtgca tgggaacgag tcctttgggc cctttatgat gaacgaaaca 660
 ttgatacaag cccttgtcct tgatctgaat attatggagt ctcagggtcc aattgtcttt 720
 gtcaaagctt gtgcggccct tataactgcg atgaacattt tgagggttct ctttgcctct 780
 gtatagctcg tacagaacca gcttatcctg gtcttgccaa aacactacca actcatccag 840
 gcttatgttt tgagaatttg taaaatggca tggcagttct ccagtcttgt tgaaatatgc 900
 ttgactcttc atggaagcag caccatagag caggagggtc atcacaaaga gaatgttatt 960

cagttccata gtgcatctga gatacat

987

<210> 11

<211> 1024

<212> DNA

<213> Canis familiaris

<220>

<221> CDS

<222> (79)..(783)

<400> 11

ctttgacgtt ttgttttgtt ttgttctaac acaagaaaaa aaaaaaagag gagttatcct 60

tcagcagcag	cagaagcc	atg	gat	tac	aca	gcg	aag	tgg	aga	aca	cca	cca	111
		Met	Asp	Tyr	Thr	Ala	Lys	Trp	Arg	Thr	Pro	Pro	
		1				5					10		

ctc	aaa	cac	cca	tat	ctc	aag	gtc	tct	cag	ctc	ttg	gtg	cta	gct	agt	159
Leu	Lys	His	Pro	Tyr	Leu	Lys	Val	Ser	Gln	Leu	Leu	Val	Leu	Ala	Ser	
		15					20					25				

ctc	ttt	tac	ttc	tgt	tca	ggc	atc	atc	cag	gtg	aac	aag	aca	gtg	aaa	207
Leu	Phe	Tyr	Phe	Cys	Ser	Gly	Ile	Ile	Gln	Val	Asn	Lys	Thr	Val	Lys	
	30					35					40					

gaa	gta	gca	gta	ctg	tcc	tgt	gat	tac	aac	att	tcc	act	aca	gaa	ctg	255
Glu	Val	Ala	Val	Leu	Ser	Cys	Asp	Tyr	Asn	Ile	Ser	Thr	Thr	Glu	Leu	
	45					50					55					

atg	aaa	gtt	cga	atc	tat	tgg	caa	aag	gat	gat	gaa	gtg	gtg	ctg	gct	303
Met	Lys	Val	Arg	Ile	Tyr	Trp	Gln	Lys	Asp	Asp	Glu	Val	Val	Leu	Ala	
60				65					70					75		

gtc	aca	tct	gga	caa	acg	aaa	gtg	tgg	tcc	aag	tat	gag	aat	cgc	acc	351
Val	Thr	Ser	Gly	Gln	Thr	Lys	Val	Trp	Ser	Lys	Tyr	Glu	Asn	Arg	Thr	
			80					85						90		

ttt	gct	gac	ttc	acc	aat	aac	ctc	tcc	atc	gtg	att	atg	gct	ctg	cgc	399
Phe	Ala	Asp	Phe	Thr	Asn	Asn	Leu	Ser	Ile	Val	Ile	Met	Ala	Leu	Arg	
			95				100						105			

ctg	tca	gac	aat	ggc	aaa	tac	acc	tgt	atc	gtt	caa	aag	act	gaa	aaa	447
Leu	Ser	Asp	Asn	Gly	Lys	Tyr	Thr	Cys	Ile	Val	Gln	Lys	Thr	Glu	Lys	
			110				115							120		

```

agg tct tac aaa gtg aaa cac atg act tcg gtg atg tta ttg gtc aga 495
Arg Ser Tyr Lys Val Lys His Met Thr Ser Val Met Leu Leu Val Arg
125 130 135

gct gac ttc cct gtc cct agt ata act gac ctt gga aat cca tcc cat 543
Ala Asp Phe Pro Val Pro Ser Ile Thr Asp Leu Gly Asn Pro Ser His
140 145 150 155

gac atc aaa agg ata atg tgt tca acc tct gga ggt ttt cca aag cct 591
Asp Ile Lys Arg Ile Met Cys Ser Thr Ser Gly Gly Phe Pro Lys Pro
160 165 170

cac ctc tcc tgg tgg gaa aat gaa gaa gaa ttg aat gct gcc aac aca 639
His Leu Ser Trp Trp Glu Asn Glu Glu Glu Leu Asn Ala Ala Asn Thr
175 180 185

aca gtt tcc caa gac ccg gac act gag ttg tac act att agt agt gaa 687
Thr Val Ser Gln Asp Pro Asp Thr Glu Leu Tyr Thr Ile Ser Ser Glu
190 195 200

ctg gat ttc aat ata aca agc aac cat agc ttt gtg tgt ctt gtc aag 735
Leu Asp Phe Asn Ile Thr Ser Asn His Ser Phe Val Cys Leu Val Lys
205 210 215

tat gga gac tta aca gta tca cag atc ttc aac tgg caa aaa tgt aag 783
Tyr Gly Asp Leu Thr Val Ser Gln Ile Phe Asn Trp Gln Lys Cys Lys
220 225 230 235

taacattgtt ctgaggagtt tctactgtgt aaaatctaaa aagaaaataa ctcagccaga 843

tacatttttg aattatgtat gttaactttg atagcatttc ttgtattttt agaccataa 903

atgataatga agtgatattg tgacttgta aggtcactgt acaggatatgg ccataatgtt 963

actaatttta tttccttta taaaccttct aaaactgaga catccaaaaa aaaaaaaaaa 1023

a 1024

```

```

<210> 12
<211> 235
<212> PRT
<213> Canis familiaris

```

```

<400> 12
Met Asp Tyr Thr Ala Lys Trp Arg Thr Pro Pro Leu Lys His Pro Tyr
1 5 10 15

```

Leu Lys Val Ser Gln Leu Leu Val Leu Ala Ser Leu Phe Tyr Phe Cys
 20 25 30
 Ser Gly Ile Ile Gln Val Asn Lys Thr Val Lys Glu Val Ala Val Leu
 35 40 45
 Ser Cys Asp Tyr Asn Ile Ser Thr Thr Glu Leu Met Lys Val Arg Ile
 50 55 60
 Tyr Trp Gln Lys Asp Asp Glu Val Val Leu Ala Val Thr Ser Gly Gln
 65 70 75 80
 Thr Lys Val Trp Ser Lys Tyr Glu Asn Arg Thr Phe Ala Asp Phe Thr
 85 90 95
 Asn Asn Leu Ser Ile Val Ile Met Ala Leu Arg Leu Ser Asp Asn Gly
 100 105 110
 Lys Tyr Thr Cys Ile Val Gln Lys Thr Glu Lys Arg Ser Tyr Lys Val
 115 120 125
 Lys His Met Thr Ser Val Met Leu Leu Val Arg Ala Asp Phe Pro Val
 130 135 140
 Pro Ser Ile Thr Asp Leu Gly Asn Pro Ser His Asp Ile Lys Arg Ile
 145 150 155 160
 Met Cys Ser Thr Ser Gly Gly Phe Pro Lys Pro His Leu Ser Trp Trp
 165 170 175
 Glu Asn Glu Glu Glu Leu Asn Ala Ala Asn Thr Thr Val Ser Gln Asp
 180 185 190
 Pro Asp Thr Glu Leu Tyr Thr Ile Ser Ser Glu Leu Asp Phe Asn Ile
 195 200 205
 Thr Ser Asn His Ser Phe Val Cys Leu Val Lys Tyr Gly Asp Leu Thr
 210 215 220
 Val Ser Gln Ile Phe Asn Trp Gln Lys Cys Lys
 225 230 235

<210> 13

<211> 1024

<212> DNA

<213> Canis familiaris

<400> 13

tttttttttt ttttttgat gtctcagttt tagaaggttt attaaaggaa ataaaattag 60
 taacattatg gccatacctg tacagtgacc ttaacaagtc acaatatcac ttcattatca 120
 tttatgggtc taaaaataca agaaatgcta tcaaagttaa catacataat tccaaaatgt 180
 atctgggtga gttatcttct ttttagattt tacacagtag aaactcctca gaacaatgtt 240
 acttacattt ttgccagttg aagatctgtg atactgttaa gtctccatac ttgacaagac 300
 acacaaagct atgggttgctt gttatattga aatccagttc actactaata gtgtacaact 360
 cagtgtccgg gtcttgggaa actgttgtgt tggcagcatt caattcttct tcattttccc 420
 accaggagag gtgaggcttt ggaaaacctc cagaggttga acacattatc cttttgatgt 480
 catgggatgg atttccaagg tcagttatac tagggacagg gaagtcagct ctgaccaata 540
 acatcaccga agtcatgtgt ttcactttgt aagacctttt ttcagtcttt tgaacgatac 600
 aggtgtatct gccattgtct gacaggcgca gagccataat cacgatggag aggttattgg 660
 tgaagtcagc aaaggtgcga ttctcatact tggaccacac tttcgtttgt ccagatgtga 720
 cagccagcac cacttcatca tccttttgcc aatagattcg aactttcatc agttctgtag 780
 tggaaatgtt gtaatcacag gacagtactg ctacttcttt cactgtcttg ttcacctgga 840
 tgatgcctga acagaagtaa aagagactag ctagcaccaa gagctgagag accttgagat 900
 atgggtgttt gagtgggtgt gttctccact tcgctgtgta atccatggct tctgctgctg 960
 ctgaaggata actcctcttt ttttttttct ttgtgttaga aaaaaacaaa aaaaaacgct 1020
 aaag 1024

<210> 14

<211> 705

<212> DNA

<213> *Canis familiaris*

<400> 14

atggattaca cagcgaagtg gagaacacca ccaactcaaac acccatatct caaggctctt 60
 cagctcttgg tgctagctag tctcttttac ttctgttcag gcatcatcca ggtgaacaag 120

acagtgaaag aagtagcagt actgtcctgt gattacaaca tttccactac agaactgatg 180
 aaagttcgaa tctattggca aaaggatgat gaagtgggtgc tggctgtcac atctggacaa 240
 acgaaagtgt ggtccaagta tgagaatcgc acctttgctg acttcaccaa taacctctcc 300
 atcgtgatta tggctctgcg cctctcagac aatggcaaat acacctgtat cgttcaaaag 360
 actgaaaaaa ggtcttacaa agtgaaacac atgacttcgg tgatgttatt ggtcagagct 420
 gacttccttg tccctagtat aactgacctt ggaaatccat cccatgacat caaaaggata 480
 atgtgttcaa cctctggagg ttttccaaag cctcacctct cctgggtggga aaatgaagaa 540
 gaattgaatg ctgccaacac aacagtttcc caagaccggg aactgagtt gtacactatt 600
 agtagtgaac tggatttcaa tataacaagc aaccatagct ttgtgtgtct tgtcaagtat 660
 ggagacttaa cagtatcaca gatcttcaac tggcaaaaat gtaag 705

<210> 15

<211> 705

<212> DNA

<213> *Canis familiaris*

<400> 15

cttacatttt tgccagttga agatctgtga tactgttaag tctccatact tgacaagaca 60
 cacaaagcta tggttgcttg ttatattgaa atccagttca ctactaatag tgtacaactc 120
 agtgtccggg tcttgggaaa ctgttgtgtt ggcagcattc aattcttctt cattttccca 180
 ccaggagagg tgaggctttg gaaaacctcc agaggttgaa cacattatcc ttttgatgtc 240
 atgggatgga tttccaaggt cagttatact agggacaggg aagtcagctc tgaccaataa 300
 catcaccgaa gtcattgtgtt tcactttgta agaccttttt tcagtctttt gaacgataca 360
 ggtgtatttg ccattgtctg acaggcgcag agccataatc acgatggaga ggttattggg 420
 gaagtcagca aaggtgcgat tctcatactt ggaccacact ttcgtttgct cagatgtgac 480
 agccagcacc acttcatcat ccttttgcca atagattoga actttcatca gttctgtagt 540
 ggaaatgttg taatcacagg acagtactgc tacttctttc actgtcttgt tcacctggat 600
 gatgcctgaa cagaagtaaa agagactagc tagcaccaag agctgagaga ccttgagata 660

tgggtgtttg agtggtggtg ttctccactt cgctgtgtaa tccat

705

<210> 16

<211> 1795

<212> DNA

<213> Canis familiaris

<220>

<221> CDS

<222> (7)..(846)

<400> 16

gccaag atg tat ctc aga tgc act atg gaa ctg aat aac att ctc ttt 48
Met Tyr Leu Arg Cys Thr Met Glu Leu Asn Asn Ile Leu Phe
1 5 10

gtg atg acc ctc ctg ctc tat ggt gct gct tcc atg aag agt caa gca 96
Val Met Thr Leu Leu Leu Tyr Gly Ala Ala Ser Met Lys Ser Gln Ala
15 20 25 30

tat ttc aac aag act gga gaa ctg cca tgc cat ttt aca aat tct caa 144
Tyr Phe Asn Lys Thr Gly Glu Leu Pro Cys His Phe Thr Asn Ser Gln
35 40 45

aac ata agc ctg gat gag ttg gta gtg ttt tgg cag gac cag gat aag 192
Asn Ile Ser Leu Asp Glu Leu Val Val Phe Trp Gln Asp Gln Asp Lys
50 55 60

ctg gtt ctg tac gag cta tac aga ggc aaa gag aac cct caa aat gtt 240
Leu Val Leu Tyr Glu Leu Tyr Arg Gly Lys Glu Asn Pro Gln Asn Val
65 70 75

cat cgc aag tat aag ggc cgc aca agc ttt gac aaa gac aat tgg acc 288
His Arg Lys Tyr Lys Gly Arg Thr Ser Phe Asp Lys Asp Asn Trp Thr
80 85 90

ctg aga ctc cat aat att cag atc aag gac aag ggc ttg tat caa tgt 336
Leu Arg Leu His Asn Ile Gln Ile Lys Asp Lys Gly Leu Tyr Gln Cys
95 100 105 110

ttc gtt cat cat aaa ggg ccc aaa gga ctc gtt ccc atg cac cag atg 384
Phe Val His His Lys Gly Pro Lys Gly Leu Val Pro Met His Gln Met
115 120 125

aat tct gac cta tca gtg ctt gct aac ttc agt caa cct gaa ata atg 432
Asn Ser Asp Leu Ser Val Leu Ala Asn Phe Ser Gln Pro Glu Ile Met

130	135	140	
gta act tct aat aga aca gaa aat tct ggc atc ata aat ttg acc tgc			480
Val Thr Ser Asn Arg Thr Glu Asn Ser Gly Ile Ile Asn Leu Thr Cys			
145	150	155	
tca tcc ata caa ggt tac cca gaa ccc aag gag atg tat ttt ttg gta			528
Ser Ser Ile Gln Gly Tyr Pro Glu Pro Lys Glu Met Tyr Phe Leu Val			
160	165	170	
aaa acc gag aat tca agt act aag tat gat act gtc atg aag aaa tct			576
Lys Thr Glu Asn Ser Ser Thr Lys Tyr Asp Thr Val Met Lys Lys Ser			
175	180	185	190
caa aat aat gtc aca gaa ctc tac aac gtt tct atc agc ttg tcc ttc			624
Gln Asn Asn Val Thr Glu Leu Tyr Asn Val Ser Ile Ser Leu Ser Phe			
195	200	205	
tca gtc cct gaa gca agc aat gtg agc atc ttc tgt gtc ctg caa ctt			672
Ser Val Pro Glu Ala Ser Asn Val Ser Ile Phe Cys Val Leu Gln Leu			
210	215	220	
gag tca atg aag ctt ccc tcc cta cct tat aat ata gaa acc aac aaa			720
Glu Ser Met Lys Leu Pro Ser Leu Pro Tyr Asn Ile Glu Thr Asn Lys			
225	230	235	
gtg gag aga aaa gaa agt gag cag acc aag gaa aga gta cgg tac cat			768
Val Glu Arg Lys Glu Ser Glu Gln Thr Lys Glu Arg Val Arg Tyr His			
240	245	250	
gaa acg gaa aga tct gat gaa gcc cag tgt gtt aac att tcg aag aca			816
Glu Thr Glu Arg Ser Asp Glu Ala Gln Cys Val Asn Ile Ser Lys Thr			
255	260	265	270
gct tca ggc gac aac agt act aca cag ttt taattaaaga gtaaagtcca			866
Ala Ser Gly Asp Asn Ser Thr Thr Gln Phe			
275	280		
tccattgttt atatgccttc cctttcaaatt tttggcttgc ctttttctcg tccattaata			926
ttattattgc cactaataat aagaggcttt ccagggtccc ctctaaatga gagagcctcc			986
ctataatgcc agttctgctc cctacaccag gagcagattt taactgcttc ttttcatctc			1046
agagcacact tgtgggccaat gctcacctga ctggctcctg gctcaggaat aatgtttaag			1106
actaacacct cctgttttcag attcagcctt cttttcttaa ttttatacat tgtgttttat			1166

gtagaactcc caattactgg actaatggct tttatctatg cttaattcta agatagtgcc 1226
 tcattccatc ttgtatatatt gtgactacct ctgcagtctg ggtgggagtt ttgtatgtta 1286
 tggctttata gtgttgcttt aatattttga gacataaaga gatgtgtact ataataatgt 1346
 aattactatg ccctgagaaa attctaccca ctgctgagga gctcttgctc ctctgtgagg 1406
 gtcagtagca aaatggtggc ttggtgtgct gacaacaatg agcagaccaa ctcaaaattt 1466
 ggaagattag gaatgatgga gatagaacca gctctgagtc ctggagccac ttctatctgg 1526
 gctgctgcta atctgaggaa gatccacctg cctaacaagc tatggataag ccttagcagg 1586
 gagctctttg tgaagcagga aagcactatg cactgtgaac cctacttctc ttcttgaaaa 1646
 aaatggctga gatgatggct cagggcaact gttcaagagc caactgagag atcacaatac 1706
 ttaaaagaga aaaaagaaaa aagaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa 1766
 aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa 1795

<210> 17

<211> 280

<212> PRT

<213> *Canis familiaris*

<400> 17

Met	Tyr	Leu	Arg	Cys	Thr	Met	Glu	Leu	Asn	Asn	Ile	Leu	Phe	Val	Met
1				5					10					15	

Thr	Leu	Leu	Leu	Tyr	Gly	Ala	Ala	Ser	Met	Lys	Ser	Gln	Ala	Tyr	Phe
			20					25					30		

Asn	Lys	Thr	Gly	Glu	Leu	Pro	Cys	His	Phe	Thr	Asn	Ser	Gln	Asn	Ile
	35						40					45			

Ser	Leu	Asp	Glu	Leu	Val	Val	Phe	Trp	Gln	Asp	Gln	Asp	Lys	Leu	Val
	50					55					60				

Leu	Tyr	Glu	Leu	Tyr	Arg	Gly	Lys	Glu	Asn	Pro	Gln	Asn	Val	His	Arg
65					70					75				80	

Lys	Tyr	Lys	Gly	Arg	Thr	Ser	Phe	Asp	Lys	Asp	Asn	Trp	Thr	Leu	Arg
			85						90					95	

Leu	His	Asn	Ile	Gln	Ile	Lys	Asp	Lys	Gly	Leu	Tyr	Gln	Cys	Phe	Val
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----

100	105	110
His His Lys Gly Pro Lys Gly Leu Val Pro Met His Gln Met Asn Ser		
115	120	125
Asp Leu Ser Val Leu Ala Asn Phe Ser Gln Pro Glu Ile Met Val Thr		
130	135	140
Ser Asn Arg Thr Glu Asn Ser Gly Ile Ile Asn Leu Thr Cys Ser Ser		
145	150	155
Ile Gln Gly Tyr Pro Glu Pro Lys Glu Met Tyr Phe Leu Val Lys Thr		
165	170	175
Glu Asn Ser Ser Thr Lys Tyr Asp Thr Val Met Lys Lys Ser Gln Asn		
180	185	190
Asn Val Thr Glu Leu Tyr Asn Val Ser Ile Ser Leu Ser Phe Ser Val		
195	200	205
Pro Glu Ala Ser Asn Val Ser Ile Phe Cys Val Leu Gln Leu Glu Ser		
210	215	220
Met Lys Leu Pro Ser Leu Pro Tyr Asn Ile Glu Thr Asn Lys Val Glu		
225	230	235
Arg Lys Glu Ser Glu Gln Thr Lys Glu Arg Val Arg Tyr His Glu Thr		
245	250	255
Glu Arg Ser Asp Glu Ala Gln Cys Val Asn Ile Ser Lys Thr Ala Ser		
260	265	270
Gly Asp Asn Ser Thr Thr Gln Phe		
275	280	

<210> 18

<211> 1795

<212> DNA

<213> Canis familiaris

<400> 18

tttttttttt tttttttttt tttttttttt tttttttttt tttttttttt 60
 ttttttcttt tttttttttt ctcttttaag tattgtgatc tctcagttgg ctcttgaaca 120
 gttgccctga gccatcatct cagccatttt tttcaagaag agaagtaggg ttcacagtgc 180

atagtgtctt cctgtctcac aaagagctcc ctgctaaggc ttatccatag cttgttaggc 240
aggtggatct tcctcagatt agcagcagcc cagatagaag tggctccagg actcagagct 300
ggttctatct ccatcattcc taatcttcca aattttgagt tggctgtctc attgttgtca 360
gcacaccaag ccaccatttt cgtactgacc ctacacagagg agcaagagct cctcagcagt 420
gggtagaatt ttctcagggc atagtaatta cattattata gtacacatct ctttatgtct 480
caaaatatta aagcaacact ataaagccat aacatacaaa actcccaccc agactgcaga 540
ggtagtcaca aatatacaag atggaatgag gcactatctt agaattaagc atagataaaa 600
gccattagtc cagtaattgg gagttctaca taaaacacaa tgtataaaat taagaaaaga 660
aggctgaatc tgaaacagga ggtgttagtc ttaaacatta ttcttgagcc aggagccagt 720
caggtgagca tggcccacaa gtgtgtctctg agatgaaaag aagcagttaa aatctgtctc 780
tgggtgtaggg agcagaactg gcattatagg gaggtctctc catttagagg gagccctgga 840
aagcctctta ttattagtgg caataataat attaattggac gagaaaaagg caagccaaaa 900
tttgaaaggg aaggcatata aacaatggat ggactttact ctttaattaa aactgtgtag 960
tactgttgtc gcctgaagct gtcttcgaaa tgtaaacaca ctgggcttca tcagatcttt 1020
ccgtttcatg gtaccgtact ctttccttgg tctgtcact ttcttttctc tccactttgt 1080
tggtttctat attataaggt agggagggaa gcttcattga ctcaagttgc aggacacaga 1140
agatgctcac attgcttgct tcagggactg agaaggacaa gctgatagaa acgttgtaga 1200
gttctgtgac attattttga gatttcttca tgacagtatc atacttagta cttgaattct 1260
cggtttttac caaaaaatac atctccttgg gttctgggta accttgatg gatgagcagg 1320
tcaaatttat gatgccagaa ttttctgttc tattagaagt taccattatt tcaggttgac 1380
tgaagttagc aagcactgat aggtcagaat tcactgtgtg catgggaacg agtcctttgg 1440
gccctttatg atgaacgaaa cattgataca agcccttgct cttgatctga atattatgga 1500
gtctcagggc ccaattgtct ttgtcaaagc ttgtgcggcc cttatacttg cgatgaacat 1560
tttgagggtt ctctttgcct ctgtatagct cgtacagaac cagcttatcc tggtcctgcc 1620

aaaacactac caactcatcc aggcattatgt ttgagaatt tgtaaaatgg catggcagtt 1680
ctccagtctt gttgaaatat gcttgactct tcatggaagc agcaccatag agcaggaggg 1740
tcatcacaaa gagaatgtta ttcagttcca tagtgcattc gagatacatc ttggc 1795

<210> 19
<211> 840
<212> DNA
<213> Canis familiaris

<400> 19
atgtatctca gatgcactat ggaactgaat aacattctct ttgtgatgac cctcctgctc 60
tatgggtgctg cttccatgaa gagtcaagca tatttcaaca agactggaga actgccatgc 120
cattttacaa attctcaaaa cataagcctg gatgagttgg tagtgttttg gcaggaccag 180
gataagctgg ttctgtacga gctatacaga ggcaaagaga accctcaaaa tgttcatcgc 240
aagtataagg gccgcacaag ctttgacaaa gacaattgga ccctgagact ccataatatt 300
cagatcaagg acaagggtt gtatcaatgt ttcgttcac ataaagggcc caaaggactc 360
gttcccatgc accagatgaa ttctgaccta tcagtgttg ctaacttcag tcaacctgaa 420
ataatggtaa cttctaatag aacagaaaat tctggcatca taaatttgac ctgctcatcc 480
atacaagggt acccagaacc caaggagatg ttttttttg taaaaaccga gaattcaagt 540
actaagtatg atactgtcat gaagaaatct caaaataatg tcacagaact ctacaacgtt 600
tctatcagct tgccttctc agtccctgaa gcaagcaatg tgagcatctt ctgtgtcctg 660
caacttgagt caatgaagct tccctcccta cttataata tagaaaccaa caaagtggag 720
agaaaagaaa gtgagcagac caaggaaaga gtacggtacc atgaaacgga aagatctgat 780
gaagcccagt gtgttaacat ttcgaagaca gcttcaggcg acaacagtac tacacagttt 840

<210> 20
<211> 840
<212> DNA
<213> Canis familiaris

<400> 20

aaactgtgta gtactgttgt cgctgaagc tgtcttcgaa atgttaacac actgggcttc 60
 atcagatctt tccgtttcat ggtaccgtac tctttccttg gtctgtcac tttcttttct 120
 ctccactttg ttggtttcta tattataagg tagggaggga agcttcattg actcaagttg 180
 caggacacag aagatgctca cattgcttgc ttcagggact gagaaggaca agctgataga 240
 aacgttgtag agttctgtga cattatcttg agatttcttc atgacagtat catacttagt 300
 acttgaattc tcggttttta ccaaaaaata catctccttg gggtctgggt aaccttgat 360
 ggatgagcag gtcaaattta tgatgccaga attttctgtt ctattagaag ttaccattat 420
 ttcagggtga ctgaagttag caagcactga taggtcagaa ttcattctgt gcatgggaac 480
 gagtcctttg ggccctttat gatgaacgaa acattgatac aagcccttgt ccttgatctg 540
 aatattatgg agtctcaggg tccaattgtc tttgtcaaag ctgtgoggc ccttatactt 600
 gcgatgaaca ttttgagggt tctctttgcc tctgtatagc tcgtacagaa ccagcttata 660
 ctggtcctgc caaaacacta ccaactcatc caggcttatg ttttgagaat ttgtaaaatg 720
 gcatggcagt tctccagtct tgttgaaata tgcttgactc ttcattggaag cagcaccata 780
 gagcaggagg gtcattcaca agagaatggt attcagttcc atagtgcac tgagatacat 840

<210> 21

<211> 18

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
Primer

<400> 21

gtcaragctg acttcctt

18

<210> 22

<211> 22

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
Primer

<400> 22

gtagaaactc ctcagaacaa tg

22

<210> 23

<211> 19

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
Primer

<400> 23

gtagtatattt ggcaggacc

19

<210> 24

<211> 23

<212> DNA

<213> Canis familiaris

<400> 24

tagaygsgca ggtcaaattt atg

23

<210> 25

<211> 2830

<212> DNA

<213> Felis catus

<220>

<221> CDS

<222> (179)..(1174)

<400> 25

gtttttttttt ttttgagttc tagtctcagc cctgacatta tttctttctc tacaaagagt 60

gtaggaagt tatggggagc tcacaaaggc tctcatcgt ttattcttaa caccttgttt 120

ctgtgttcct cggaatgac actgagctta tacatctggt ctctgggagc tgcagtgg 178

atg ggc att tgt gac agc act atg gga ctg agt cac act ctc ctt gtg 226
Met Gly Ile Cys Asp Ser Thr Met Gly Leu Ser His Thr Leu Leu Val

1

5

10

15

atg gcc ctc ctg ctc tct ggt gtt tct tcc atg aag agt caa gca tat	274
Met Ala Leu Leu Leu Ser Gly Val Ser Ser Met Lys Ser Gln Ala Tyr	
20 25 30	
ttc aac aag act gga gaa ctg cca tgc cat ttt aca aac tct caa aac	322
Phe Asn Lys Thr Gly Glu Leu Pro Cys His Phe Thr Asn Ser Gln Asn	
35 40 45	
ata agc ctg gat gag ctg gta gta ttt tgg cag gac cag gat aag ctg	370
Ile Ser Leu Asp Glu Leu Val Val Phe Trp Gln Asp Gln Asp Lys Leu	
50 55 60	
gtt ctg tat gag ata ttc aga ggc aaa gag aac cct caa aat gtt cat	418
Val Leu Tyr Glu Ile Phe Arg Gly Lys Glu Asn Pro Gln Asn Val His	
65 70 75 80	
ctc aaa tat aag ggc cgt aca agc ttt gac aag gac aac tgg acc ctg	466
Leu Lys Tyr Lys Gly Arg Thr Ser Phe Asp Lys Asp Asn Trp Thr Leu	
85 90 95	
aga ctc cac aat gtt cag atc aag gac aag ggc aca tat cac tgt ttc	514
Arg Leu His Asn Val Gln Ile Lys Asp Lys Gly Thr Tyr His Cys Phe	
100 105 110	
att cat tat aaa ggg ccc aaa gga cta gtt ccc atg cac caa atg agt	562
Ile His Tyr Lys Gly Pro Lys Gly Leu Val Pro Met His Gln Met Ser	
115 120 125	
tct gac cta tca gtg ctt gct aac ttc agt caa cct gaa ata aca gta	610
Ser Asp Leu Ser Val Leu Ala Asn Phe Ser Gln Pro Glu Ile Thr Val	
130 135 140	
act tct aat aga aca gaa aat tct ggc atc ata aat ttg acc tgc tca	658
Thr Ser Asn Arg Thr Glu Asn Ser Gly Ile Ile Asn Leu Thr Cys Ser	
145 150 155 160	
tct ata caa ggt tac cca gaa cct aag gag atg tat ttt cag cta aac	706
Ser Ile Gln Gly Tyr Pro Glu Pro Lys Glu Met Tyr Phe Gln Leu Asn	
165 170 175	
act gag aat tca act act aag tat gat act gtc atg aag aaa tct caa	754
Thr Glu Asn Ser Thr Thr Lys Tyr Asp Thr Val Met Lys Lys Ser Gln	
180 185 190	
aat aat gtg aca gaa ctg tac aac gtt tct atc agc ttg cct ttt tca	802
Asn Asn Val Thr Glu Leu Tyr Asn Val Ser Ile Ser Leu Pro Phe Ser	
195 200 205	

gtc cct gaa gca cac aat gtg agc gtc ttt tgt gcc ctg aaa ctg gag 850
 Val Pro Glu Ala His Asn Val Ser Val Phe Cys Ala Leu Lys Leu Glu
 210 215 220

aca ctg gag atg ctg ctc tcc cta cct ttc aat ata gat gca caa cct 898
 Thr Leu Glu Met Leu Leu Ser Leu Pro Phe Asn Ile Asp Ala Gln Pro
 225 230 235 240

aag gat aaa gac cct gaa caa ggc cac ttc ctc tgg att gcg gct gta 946
 Lys Asp Lys Asp Pro Glu Gln Gly His Phe Leu Trp Ile Ala Ala Val
 245 250 255

ctt gta atg ttt gtt gtt ttt tgt ggg atg gtg tcc ttt aaa aca cta 994
 Leu Val Met Phe Val Val Phe Cys Gly Met Val Ser Phe Lys Thr Leu
 260 265 270

agg aaa agg aag aag aag cag cct ggc ccc tct cat gaa tgt gaa acc 1042
 Arg Lys Arg Lys Lys Lys Gln Pro Gly Pro Ser His Glu Cys Glu Thr
 275 280 285

atc aaa agg gag aga aaa gag agc aaa cag acc aac gaa aga gta cca 1090
 Ile Lys Arg Glu Arg Lys Glu Ser Lys Gln Thr Asn Glu Arg Val Pro
 290 295 300

tac cac gta cct gag aga tct gat gaa gcc cag tgt att aac att ttg 1138
 Tyr His Val Pro Glu Arg Ser Asp Glu Ala Gln Cys Ile Asn Ile Leu
 305 310 315 320

aag aca gcc tca ggc gac aaa agt act aca cat ttt taattaaaga 1184
 Lys Thr Ala Ser Gly Asp Lys Ser Thr Thr His Phe
 325 330

ataaagtcca tataactgtc cattgtttat atgcctttcc cttcaagttt tgggcttacc 1244

tttttttgtc tattaatatt attattacca ttaataatag tggaggttcc aggactccat 1304

ctgagaaagc caccctgtaa tgccagctct gctccctacc tcaggagcag accttaactg 1364

cttcttttca tttcagagca aatttgtgcg ccaagctcac ctgactggat cctggctcag 1424

gaataatggt taagactaac acctcctggt tcacattcag ctttcttttc ttaattttat 1484

aaattgcgtc ttatgtagaa ctcccaatta ctggaataat ggctttttatc tatgtaattc 1544

taaggtagtg cctcattcta tcttgtatat ttgtgactga ataactacct cttcagtctt 1604

gtgggagtta tatattttat ggcttttata gtattgctat taatatcttg aaacataaag 1664

agatgtgtac tataataatg taattactat gccctgagaa aatcactgct gaggagctct 1724
 tgtccctctg tgaagatcag taggaaaatg gtggcttggc gtgctgacaa tgatgagcag 1784
 accaactcaa aatttggaaa attaagacca tgaagatgga atcagctctg gatcctggat 1844
 ccacttctat ctgggccctt gctaacctga gaaggatctg cctgcggaac aagctataga 1904
 taagccttag cagagaacac tgggtcaagc actgcatatt gtgaaccac ttctcttctt 1964
 gaaagaaatg actgagatga tgggtccagag caactatgca agagccaact gagagatcac 2024
 aacactcaaa agagaaaaaa aatgaaagat cttgacaaca gagatgcata tgaatgtcct 2084
 gtctgtccag tcctctgaca aaccttggga ttagcaacag gtagacagtc tgtccaaaag 2144
 gacttaagac agacagcagc tcccatgggtg gttgggtgaga agtttggata ataatacaagt 2204
 tattgtgatg tttcatctgg ctgcaggcag agcaggggag gaagagctat catcttgata 2264
 atgggataaa tggaaggaag cttaggactc tttcaactta cttctgagac acaaagagct 2324
 agagtggaat caggaggacc aagatgtaaa tcactctaaag gccaaacttag ctggcaggtg 2384
 ccctagggag agatcagctg gccaaagaca ggggtggcaa atttatatct gaggactgtc 2444
 tatatgtcat tataaatgat ggggaaactg ggtacacgag aggactatac tagcccagta 2504
 gagatgagtc agatgaccct ggctctaaag cagcatcact aagggacgag gcagcctcag 2564
 tccaaaccaa gagagaactt tgggaggccc aaccacaga aatatttctt cttattctac 2624
 ataaaggaat ctagaagggt gtagacagct gtactagcca tgcttgtcct tgtaatatta 2684
 ccatttgtgt gttcttcctt gcatttgctt cattaggcca taagcatctt gttggtttct 2744
 aacatgtttc gtatagttag ttcttaataa atttttctta aattgaaaaa aaaaaaaaaa 2804
 aaaaaaaaaa aaaaaaaaaa aaaaaa 2830

<210> 26

<211> 332

<212> PRT

<213> Felis catus

<400> 26

Met Gly Ile Cys Asp Ser Thr Met Gly Leu Ser His Thr Leu Leu Val
 1 5 10 15
 Met Ala Leu Leu Leu Ser Gly Val Ser Ser Met Lys Ser Gln Ala Tyr
 20 25 30
 Phe Asn Lys Thr Gly Glu Leu Pro Cys His Phe Thr Asn Ser Gln Asn
 35 40 45
 Ile Ser Leu Asp Glu Leu Val Val Phe Trp Gln Asp Gln Asp Lys Leu
 50 55 60
 Val Leu Tyr Glu Ile Phe Arg Gly Lys Glu Asn Pro Gln Asn Val His
 65 70 75 80
 Leu Lys Tyr Lys Gly Arg Thr Ser Phe Asp Lys Asp Asn Trp Thr Leu
 85 90 95
 Arg Leu His Asn Val Gln Ile Lys Asp Lys Gly Thr Tyr His Cys Phe
 100 105 110
 Ile His Tyr Lys Gly Pro Lys Gly Leu Val Pro Met His Gln Met Ser
 115 120 125
 Ser Asp Leu Ser Val Leu Ala Asn Phe Ser Gln Pro Glu Ile Thr Val
 130 135 140
 Thr Ser Asn Arg Thr Glu Asn Ser Gly Ile Ile Asn Leu Thr Cys Ser
 145 150 155 160
 Ser Ile Gln Gly Tyr Pro Glu Pro Lys Glu Met Tyr Phe Gln Leu Asn
 165 170 175
 Thr Glu Asn Ser Thr Thr Lys Tyr Asp Thr Val Met Lys Lys Ser Gln
 180 185 190
 Asn Asn Val Thr Glu Leu Tyr Asn Val Ser Ile Ser Leu Pro Phe Ser
 195 200 205
 Val Pro Glu Ala His Asn Val Ser Val Phe Cys Ala Leu Lys Leu Glu
 210 215 220
 Thr Leu Glu Met Leu Leu Ser Leu Pro Phe Asn Ile Asp Ala Gln Pro
 225 230 235 240
 Lys Asp Lys Asp Pro Glu Gln Gly His Phe Leu Trp Ile Ala Ala Val
 245 250 255

Leu Val Met Phe Val Val Phe Cys Gly Met Val Ser Phe Lys Thr Leu
 260 265 270
 Arg Lys Arg Lys Lys Lys Gln Pro Gly Pro Ser His Glu Cys Glu Thr
 275 280 285
 Ile Lys Arg Glu Arg Lys Glu Ser Lys Gln Thr Asn Glu Arg Val Pro
 290 295 300
 Tyr His Val Pro Glu Arg Ser Asp Glu Ala Gln Cys Ile Asn Ile Leu
 305 310 315 320
 Lys Thr Ala Ser Gly Asp Lys Ser Thr Thr His Phe
 325 330

<210> 27

<211> 2830

<212> DNA

<213> Felis catus

<400> 27

tttttttttt tttttttttt tttttttttt tttttttttt tcaatttaag aaaaatttat 60
 taagaactca ctatacgaaa catgttagaa accaacaaga tgcttatggc ctaatgaagc 120
 aaatgcaggg aagaacacac aaatggtaat attacaagga caagcatggc tagtacagct 180
 gtctacaacc ttctagattc ctttatgtag aataagaaga aatatttctg tgggttgggc 240
 ctcccaaagt tctctcttgg tttggactga ggctgcctcg tcccttagtg atgctgcttt 300
 agagccaggg tcatctgact catctctact gggctagtag agtcctctcg tgtaccagct 360
 ttcccatca tttataatga catatagaca gtctcagat ataaatttgc caccctgct 420
 cttggccagc tgatctctcc ctagggcacc tgccagctaa gttggccttt agatgattta 480
 catcttggtc ctctgattc cactctagct ctttgtgtct cagaagtaag ttgaaagagt 540
 cctaagcttc cttccattta tccattatc aagatgatag ctcttcctcc cctgctctgc 600
 ctgcagccag atgaaacatc acaataactt gattattatc caaacttctc accaaccacc 660
 atgggagctg ctgtctgtct taagtccttt tggacagact gtctacctgt tgctaatacc 720
 aaggtttgct agaggactgg acagacagga cattcatatg catctctggt gtcaagatct 780

ttcatttttt ttctcttttg agtggtgtga tctctcagtt ggctcttgca tagttgctct 840
ggaccatcat ctcagtcatt tctttcaaga agagaagtgg gttcacaata tgcagtgctt 900
gacccagtgt tctctgctaa ggcttatcta tagcttgctc cgcaggcaga tctttctcag 960
gttagcaagg gccagatag aagtggatcc aggatccaga gctgattcca tcttcatggt 1020
cttaattttc caaattttga gttggtctgc tcatcattgt cagcacgcca agccaccatt 1080
ttctactga tcttcacaga gggacaagag ctctcagca gtgattttct cagggcatag 1140
taattacatt attatagtag acatctcttt atgtttcaag atattaatag caatactata 1200
aaagccataa aatatataac tcccacaaga ctgaagaggt agttattcag tcacaaatat 1260
acaagataga atgaggcact accttagaat tacatagata aaagccatta ttccagtaat 1320
tgaggagttct acataagacg caatttataa aattaagaaa agaaggctga atgtgaaaca 1380
ggagggtgta gtcttaaaca ttattctga gccaggatcc agtcagggtga gcttggcgca 1440
caaatttgct ctgaaatgaa aagaagcagt taaggctctgc tcttgaggta gggagcagag 1500
ctggcattac aggggtggctt tctcagatgg agtcctggaa cctccactat tattaatggt 1560
aataataata ttaatagaca aaaaaaggta agcccaaac ttgaagggaaggatataa 1620
acaatggaca gttatatgga ctttattctt taattaaaaa tgtgtagtac ttttgctgcc 1680
tgaggctgtc ttcaaaatgt taatacactg ggcttcatca gatctctcag gtacgtggta 1740
tggtactctt tcgttggtct gtttgctctc ttttctctcc cttttgatgg tttcacattc 1800
atgagagggg ccaggctgct tcttcttctt tttcttagt gttttaaagg acaccatccc 1860
acaaaaaaca acaaacatta caagtacage cgcaatccag aggaagtggc cttgttcagg 1920
gtctttatcc ttaggttggt catctatatt gaaaggtagg gagagcagca tctccagtgt 1980
ctccagtttc agggcacaaa agacgctcac attgtgtgct tcagggactg aaaaaggcaa 2040
gctgatagaa acgttggtaca gttctgtcac attattttga gatttcttca tgacagtatc 2100
atacttagta gttgaattct cagtgtttag ctgaaaatac atctccttag gttctgggta 2160
accttgata gatgagcagg tcaaatttat gatgccagaa ttttctgttc tattagaagt 2220

tactgttatt tcaggttgac tgaagttagc aagcactgat aggtcagaac tcatttggtg 2280
catgggaact agtcctttgg gccctttata atgaatgaaa cagtgatatg tgcccttggtc 2340
cttgatctga acattgtgga gtctcagggt ccagttgtcc ttgtcaaagc ttgtacggcc 2400
cttatatttg agatgaacat tttgagggtt ctctttgcct ctgaatatct catacagaac 2460
cagcttatcc tggtcctgcc aaaatactac cagctcatcc aggcttatgt tttgagagtt 2520
tgtaaaatgg catggcagtt ctccagtctt gttgaaatat gcttgactct tcatggaaga 2580
aacaccagag agcaggaggg ccatacacaag gagagtgtga ctcagtccca tagtgctgtc 2640
acaaatgccc atccactgca gctcccagag accagatgta taagctcagt gacattcccg 2700
aggaacacag aaacaagggtg ttaagaataa acgatgagga gcctttgtga gctccccata 2760
acttcctaac actctttgta gagaaagaaa taatgtcagg gctgagacta gaactcaaaa 2820
aaaaaaaaac 2830

<210> 28

<211> 996

<212> DNA

<213> Felis catus

<400> 28

atgggcattt gtgacagcac tatgggactg agtcacactc tccttgtgat ggccctcctg 60
ctctctggtg tttcttccat gaagagtcaa gcatatttca acaagactgg agaactgcca 120
tgccatttta caaactctca aaacataagc ctggatgagc tggtagtatt ttggcaggac 180
caggataagc tggttctgta tgagatattc agaggcaaag agaaccctca aaatgttcat 240
ctcaaatata agggccgtac aagctttgac aaggacaact ggaccctgag actccacaat 300
gttcagatca aggacaaggg cacatatcac tgtttcattc attataaagg gcccaaagga 360
ctagttccca tgcaccaaact gagttctgac ctatcagtgc ttgctaactt cagtcaacct 420
gaaataacag taacttctaa tagaacagaa aattctggca tcataaattt gacctgctca 480
tctatacaag gttaccaga acctaaggag atgtattttc agctaaacac tgagaattca 540
actactaagt atgatactgt catgaagaaa tctcaaaata atgtgacaga actgtacaac 600

gtttctatca gcttgccctt ttcagtcctt gaagcacaca atgtgagcgt cttttgtgcc 660
ctgaaactgg agacactgga gatgctgctc tccctacctt tcaatataga tgcacaacct 720
aaggataaag accctgaaca aggccacttc ctctggattg cggctgtact tgtaatgttt 780
gttggttttt gtgggatggg gtcctttaa acactaagga aaaggaagaa gaagcagcct 840
ggcccctctc atgaatgtga aaccatcaaa agggagagaa aagagagcaa acagaccaac 900
gaaagagtac cataccacgt acctgagaga tctgatgaag cccagtgtat taacattttg 960
aagacagcct caggcgacaa aagtactaca cttttt 996

<210> 29

<211> 996

<212> DNA

<213> Felis catus

<400> 29

aaaatgtgta gtacttttgt cgcctgaggc tgtcttcaaa atgttaatac actgggcttc 60
atcagatctc tcaggtaagt ggtatggtac tctttcggtg gtctgtttgc tctcttttct 120
ctcccttttg atggtttcac attcatgaga ggggccaggc tgcttcttct tcttttctct 180
tagtgtttta aaggacacca tcccacaaaa aacaacaaac attacaagta cagccgcaat 240
ccagaggaag tggccttggt cagggtcttt atccttaggt tgtgcatcta tattgaaagg 300
tagggagagc agcatctcca gtgtctccag tttcagggca caaaagacgc tcacattgtg 360
tgcttcaggg actgaaaaag gcaagctgat agaaacgttg tacagttctg tcacattatt 420
ttgagatttc ttcatgacag tatcatactt agtagttgaa ttctcagtgt ttagctgaaa 480
atacatctcc ttaggttctg ggtaaccttg tatagatgag cagggtcaaatt ttatgatgcc 540
agaattttct gttctattag aagttactgt tatttcaggt tgactgaagt tagcaagcac 600
tgataggtca gaactcattt ggtgcatggg aactagtcct ttgggcccct tataatgaat 660
gaaacagtga tatgtgccct tgtccttgat ctgaacattg tggagtctca gggccagtt 720
gtccttgatca aagcttgtag ggcccttata ttgagatga acattttgag gggtctcttt 780

gcctctgaat atctcataca gaaccagctt atcctgggtcc tgccaaaata ctaccagctc 840
 atccaggctt atgttttgag agtttgtaaa atggcatggc agttctccag tcttggtgaa 900
 atatgcttga ctcttcatgg aagaaacacc agagagcagg agggccatca caaggagagt 960
 gtgactcagt cccatagtgc tgtcacaaat gcccat 996

<210> 30
 <211> 509
 <212> DNA
 <213> Felis catus

<220>
 <221> CDS
 <222> (1)..(507)

<400> 30
 ata caa ggt tac cca gaa cct aag gag atg tat ttt cag cta aac act 48
 Ile Gln Gly Tyr Pro Glu Pro Lys Glu Met Tyr Phe Gln Leu Asn Thr
 1 5 10 15
 gag aat tca act act aag tat gat act gtc atg aag aaa tct caa aat 96
 Glu Asn Ser Thr Thr Lys Tyr Asp Thr Val Met Lys Lys Ser Gln Asn
 20 25 30
 aat gtg aca gaa ctg tac aac gtt tct atc agc ttg cct ttt tca gtc 144
 Asn Val Thr Glu Leu Tyr Asn Val Ser Ile Ser Leu Pro Phe Ser Val
 35 40 45
 cct gaa gca cac aat gtg agc gtc ttt tgt gcc ctg aaa ctg gag aca 192
 Pro Glu Ala His Asn Val Ser Val Phe Cys Ala Leu Lys Leu Glu Thr
 50 55 60
 ctg gag atg ctg ctc tcc cta cct ttc aat ata gat gca caa cct aag 240
 Leu Glu Met Leu Leu Ser Leu Pro Phe Asn Ile Asp Ala Gln Pro Lys
 65 70 75 80
 gat aaa gac cct gaa caa ggc cac ttc ctc tgg att gcg gct gta ctt 288
 Asp Lys Asp Pro Glu Gln Gly His Phe Leu Trp Ile Ala Ala Val Leu
 85 90 95
 gta atg ttt gtt gtt ttt tgt ggg atg gtg tcc ttt aaa aca cta agg 336
 Val Met Phe Val Val Phe Cys Gly Met Val Ser Phe Lys Thr Leu Arg
 100 105 110
 aaa agg aag aag aag cag cct ggc ccc tct cat gaa tgt gaa acc atc 384

Lys Arg Lys Lys Lys Gln Pro Gly Pro Ser His Glu Cys Glu Thr Ile
 115 120 125
 aaa agg gag aga aaa gag agc aaa cag acc aac gaa aga gta cca tac 432
 Lys Arg Glu Arg Lys Glu Ser Lys Gln Thr Asn Glu Arg Val Pro Tyr
 130 135 140
 cac gta cct gag aga tct gat gaa gcc cag tgt att aac att ttg aag 480
 His Val Pro Glu Arg Ser Asp Glu Ala Gln Cys Ile Asn Ile Leu Lys
 145 150 155 160
 aca gcc tca ggc gac aaa agt act aca ca 509
 Thr Ala Ser Gly Asp Lys Ser Thr Thr
 165

<210> 31
 <211> 169
 <212> PRT
 <213> Felis catus

<400> 31
 Ile Gln Gly Tyr Pro Glu Pro Lys Glu Met Tyr Phe Gln Leu Asn Thr
 1 5 10 15
 Glu Asn Ser Thr Thr Lys Tyr Asp Thr Val Met Lys Lys Ser Gln Asn
 20 25 30
 Asn Val Thr Glu Leu Tyr Asn Val Ser Ile Ser Leu Pro Phe Ser Val
 35 40 45
 Pro Glu Ala His Asn Val Ser Val Phe Cys Ala Leu Lys Leu Glu Thr
 50 55 60
 Leu Glu Met Leu Leu Ser Leu Pro Phe Asn Ile Asp Ala Gln Pro Lys
 65 70 75 80
 Asp Lys Asp Pro Glu Gln Gly His Phe Leu Trp Ile Ala Ala Val Leu
 85 90 95
 Val Met Phe Val Val Phe Cys Gly Met Val Ser Phe Lys Thr Leu Arg
 100 105 110
 Lys Arg Lys Lys Lys Gln Pro Gly Pro Ser His Glu Cys Glu Thr Ile
 115 120 125
 Lys Arg Glu Arg Lys Glu Ser Lys Gln Thr Asn Glu Arg Val Pro Tyr
 130 135 140

His Val Pro Glu Arg Ser Asp Glu Ala Gln Cys Ile Asn Ile Leu Lys
 145 150 155 160

Thr Ala Ser Gly Asp Lys Ser Thr Thr
 165

<210> 32
 <211> 509
 <212> DNA
 <213> Felis catus

<400> 32
 tgtgtagtac ttttgtcgcc tgaggctgtc ttcaaaatgt taatacactg ggcttcatca 60
 gatctctcag gtacgtggta tggctactctt tcgttggtct gtttgccttc ttttctctcc 120
 cttttgatgg tttcacattc atgagagggg ccaggctgct tcttcttctt tttccttagt 180
 gttttaaagg acaccatccc acaaaaaaca acaaacatta caagtacagc cgcaatccag 240
 aggaagtggc cttgttcagg gtctttatcc ttaggttggtg catctatatt gaaaggtagg 300
 gagagcagca tctccagtgt ctccagtttc agggcacaaa agacgctcac attgtgtgct 360
 tcagggactg aaaaaggcaa gctgatagaa acgttggtaca gttctgtcac attattttga 420
 gatttcttca tgacagtatc atacttagta gttgaattct cagtgttttag ctgaaaatac 480
 atctccttag gttctgggta accttgat 509

<210> 33
 <211> 359
 <212> DNA
 <213> Felis catus

<220>
 <221> CDS
 <222> (1)..(357)

<400> 33
 ata caa ggt tac cca gaa cct aag gag atg tat ttt cag cta aac act 48
 Ile Gln Gly Tyr Pro Glu Pro Lys Glu Met Tyr Phe Gln Leu Asn Thr
 1 5 10 15
 gag aat tca act act aag tat gat act gtc atg aag aaa tct caa aat 96

Glu Asn Ser Thr Thr Lys Tyr Asp Thr Val Met Lys Lys Ser Gln Asn
 20 25 30

 aat gtg aca gaa ctg tac aac gtt tct atc agc ttg cct ttt tca gtc 144
 Asn Val Thr Glu Leu Tyr Asn Val Ser Ile Ser Leu Pro Phe Ser Val
 35 40 45

 cct gaa gca cac aat gtg agc gtc ttt tgt gcc ctg aaa ctg gag aca 192
 Pro Glu Ala His Asn Val Ser Val Phe Cys Ala Leu Lys Leu Glu Thr
 50 55 60

 ctg gag atg ctg ctc tcc cta cct ttc aat ata gaa acc atc aaa agg 240
 Leu Glu Met Leu Leu Ser Leu Pro Phe Asn Ile Glu Thr Ile Lys Arg
 65 70 75 80

 gag aga aaa gag agc aaa cag acc aac gaa aga gta cca tac cac gta 288
 Glu Arg Lys Glu Ser Lys Gln Thr Asn Glu Arg Val Pro Tyr His Val
 85 90 95

 cct gag aga tct gat gaa gcc cag tgt att aac att ttg aag aca gcc 336
 Pro Glu Arg Ser Asp Glu Ala Gln Cys Ile Asn Ile Leu Lys Thr Ala
 100 105 110

 tca ggc gac aaa agt act aca ca 359
 Ser Gly Asp Lys Ser Thr Thr
 115

<210> 34
 <211> 119
 <212> PRT
 <213> Felis catus

<400> 34
 Ile Gln Gly Tyr Pro Glu Pro Lys Glu Met Tyr Phe Gln Leu Asn Thr
 1 5 10 15

 Glu Asn Ser Thr Thr Lys Tyr Asp Thr Val Met Lys Lys Ser Gln Asn
 20 25 30

 Asn Val Thr Glu Leu Tyr Asn Val Ser Ile Ser Leu Pro Phe Ser Val
 35 40 45

 Pro Glu Ala His Asn Val Ser Val Phe Cys Ala Leu Lys Leu Glu Thr
 50 55 60

 Leu Glu Met Leu Leu Ser Leu Pro Phe Asn Ile Glu Thr Ile Lys Arg
 65 70 75 80

Glu Arg Lys Glu Ser Lys Gln Thr Asn Glu Arg Val Pro Tyr His Val
 85 90 95

Pro Glu Arg Ser Asp Glu Ala Gln Cys Ile Asn Ile Leu Lys Thr Ala
 100 105 110

Ser Gly Asp Lys Ser Thr Thr
 115

<210> 35

<211> 359

<212> DNA

<213> Felis catus

<400> 35

tgtgtagtac ttttgtcgcc tgaggctgtc ttcaaaatgt taatacactg ggcttcatca 60
 gatctctcag gtacgtggta tgggtactctt tcgttggtct gtttgcctctc ttttctctcc 120
 cttttgatgg tttctatatatt gaaaggtagg gagagcagca tctccagtgt ctccagtttc 180
 agggcacaaa agacgctcac attgtgtgct tcagggactg aaaaaggcaa gctgatagaa 240
 acgttgtaga gttctgtcac attattttga gatttcttca tgacagtatc atacttagta 300
 gttgaattct cagtgtttag ctgaaaatac atctccttag gttctgggta accttgat 359

<210> 36

<211> 594

<212> DNA

<213> Felis catus

<220>

<221> CDS

<222> (1)..(522)

<400> 36

atg ggt cac gca gca aag tgg aaa aca cca cta ctg aag cac cca tat 48
 Met Gly His Ala Ala Lys Trp Lys Thr Pro Leu Leu Lys His Pro Tyr
 1 5 10 15

ccc aag ctc ttt ccg ctc ttg atg cta gct agt ctt ttt tac ttc tgt 96
 Pro Lys Leu Phe Pro Leu Leu Met Leu Ala Ser Leu Phe Tyr Phe Cys
 20 25 30

tca ggt atc atc cag gtg aac aag aca gtg gaa gaa gta gca gta cta 144
 Ser Gly Ile Ile Gln Val Asn Lys Thr Val Glu Glu Val Ala Val Leu
 35 40 45

tcc tgt gat tac aac att tcc acc aaa gaa ctg acg gaa att cga atc 192
 Ser Cys Asp Tyr Asn Ile Ser Thr Lys Glu Leu Thr Glu Ile Arg Ile
 50 55 60

tat tgg caa aag gat gat gaa atg gtg ttg gct gtc atg tct ggc aaa 240
 Tyr Trp Gln Lys Asp Asp Glu Met Val Leu Ala Val Met Ser Gly Lys
 65 70 75 80

gta caa gtg tgg ccc aag tac aag aac cgc aca ttc act gac gtc acc 288
 Val Gln Val Trp Pro Lys Tyr Lys Asn Arg Thr Phe Thr Asp Val Thr
 85 90 95

gat aac cac tcc att gtg atc atg gct ctg cgc ctg tca gac aat ggc 336
 Asp Ash His Ser Ile Val Ile Met Ala Leu Arg Leu Ser Asp Asn Gly
 100 105 110

aaa tac act tgt att att caa aag att gaa aaa ggg tct tac aaa gtg 384
 Lys Tyr Thr Cys Ile Ile Gln Lys Ile Glu Lys Gly Ser Tyr Lys Val
 115 120 125

aaa cac ctg act tcg gtg atg tta ttg gtc aga ggc gtc aca ccc agc 432
 Lys His Leu Thr Ser Val Met Leu Leu Val Arg Gly Val Thr Pro Ser
 130 135 140

aca gag ccc aat gcc cat gcg gag ctt gaa atc atg acc ctg aga tca 480
 Thr Glu Pro Asn Ala His Ala Glu Leu Glu Ile Met Thr Leu Arg Ser
 145 150 155 160

aga cct gag ctg aga tca aga gtc gga cgc tta atc gac tga 522
 Arg Pro Glu Leu Arg Ser Arg Val Gly Arg Leu Ile Asp
 165 170

gccacccagg catcccaatg atacttttcta aataaaactct taaaaaaaaa aaaaaaaaaa 582

aaaaaaaaaa aa 594

<210> 37

<211> 173

<212> PRT

<213> Felis catus

<400> 37

Met Gly His Ala Ala Lys Trp Lys Thr Pro Leu Leu Lys His Pro Tyr

1 5 10 15
 Pro Lys Leu Phe Pro Leu Leu Met Leu Ala Ser Leu Phe Tyr Phe Cys
 20 25 30
 Ser Gly Ile Ile Gln Val Asn Lys Thr Val Glu Glu Val Ala Val Leu
 35 40 45
 Ser Cys Asp Tyr Asn Ile Ser Thr Lys Glu Leu Thr Glu Ile Arg Ile
 50 55 60
 Tyr Trp Gln Lys Asp Asp Glu Met Val Leu Ala Val Met Ser Gly Lys
 65 70 75 80
 Val Gln Val Trp Pro Lys Tyr Lys Asn Arg Thr Phe Thr Asp Val Thr
 85 90 95
 Asp Asn His Ser Ile Val Ile Met Ala Leu Arg Leu Ser Asp Asn Gly
 100 105 110
 Lys Tyr Thr Cys Ile Ile Gln Lys Ile Glu Lys Gly Ser Tyr Lys Val
 115 120 125
 Lys His Leu Thr Ser Val Met Leu Leu Val Arg Gly Val Thr Pro Ser
 130 135 140
 Thr Glu Pro Asn Ala His Ala Glu Leu Glu Ile Met Thr Leu Arg Ser
 145 150 155 160
 Arg Pro Glu Leu Arg Ser Arg Val Gly Arg Leu Ile Asp
 165 170

<210> 38

<211> 594

<212> DNA

<213> Felis catus

<400> 38

tttttttttt tttttttttt tttttttttt taagagttta tttagaaagt atcattggga 60
 tgccctgggtg gctcagtcga ttaagcggtcc gactcttgat ctcagctcag gtcttgatct 120
 cagggtcatg atttcaagct ccgcatgggc attgggctct gtgctgggtg tgacgcctct 180
 gaccaataac atcaccgaag tcagggtgtt cactttgtaa gacccttttt caatcttttg 240
 aataatacaa gtgtatttgc cattgtctga caggcgcaga gccatgatca caatggagtg 300

gttatcgggtg acgtcagtga atgtgcgggtt cttgtacttg ggccacactt gtactttgcc 360
agacatgaca gccaacacca tttcatcatc cttttgccaa tagattcgaa tttccgtcag 420
ttctttgggtg gaaatggtgt aatcacagga tagtactgct acttcttcca ctgtcttggt 480
cacctggatg atacctgaac agaagtaaaa aagactagct agcatcaaga gcggaaagag 540
cttgggatat ggggtgcttca gtagtggtgt tttccacttt gctgcgtgac ccat 594

<210> 39

<211> 519

<212> DNA

<213> Felis catus

<400> 39

atgggtcacg cagcaaagtg gaaaacacca ctactgaagc acccatatcc caagctcttt 60
ccgctcttga tgctagctag tcttttttac ttctgttcag gtatcatcca ggtgaacaag 120
acagtggaag aagtagcagt actatcctgt gattacaaca tttccaccaa agaactgacg 180
gaaattcgaa tctattggca aaaggatgat gaaatggtgt tggctgtcat gtctggcaaa 240
gtacaagtgt ggcccaagta caagaaccgc acattcactg acgtcaccga taaccactcc 300
attgtgatca tggctctgag cctgtcagac aatggcaaata acacttgtat tattcaaaaag 360
attgaaaaag ggtcttataa agtgaaacac ctgacttcgg tgatgttatt ggtcagaggc 420
gtcacacca gcacagagcc caatgcccac gcggagcttg aaatcatgac cctgagatca 480
agacctgagc tgagatcaag agtcggacgc ttaatcgac 519

<210> 40

<211> 519

<212> DNA

<213> Felis catus

<400> 40

gtcgattaag cgtccgactc ttgatctcag ctcaggtctt gatctcaggg tcatgatttc 60
aagctccgca tgggcattgg gctctgtgct ggggtgtgacg cctctgacca ataacatcac 120
cgaagtcagg tgtttcactt tgtaagaccc tttttcaatc ttttgaataa tacaagtgta 180

tttgccattg tctgacaggc gcagagccat gatcacaatg gagtggttat cggtagacgtc 240
 agtgaatgtg cggttcttgt acttggggcca cacttgtact ttgccagaca tgacagccaa 300
 caccatttca tcatcctttt gccaatagat tcgaatttcc gtcagttctt tgggtgaaat 360
 gttgtaatca caggatagta ctgctacttc ttccactgtc ttgttcacct ggatgatacc 420
 tgaacagaag taaaaaagac tagctagcat caagagcgga aagagcttgg gatatgggtg 480
 cttcagtagt ggtgttttcc actttgctgc gtgacccat 519

<210> 41

<211> 1856

<212> DNA

<213> Canis familiaris

<220>

<221> CDS

<222> (60)..(731)

<400> 41

caggatcctg aaaggtttca ctctgcttcc tgaagacctg aacactgctc cataaagcc 59

atg gct ggc ttt gga ttc cgg agg cat ggg gct cag ccg gac ctg gct 107
 Met Ala Gly Phe Gly Phe Arg Arg His Gly Ala Gln Pro Asp Leu Ala
 1 5 10 15

tct agg acc tgg ccc tgc act gct ctg ttt tct ctt ctc ttt atc ccc 155
 Ser Arg Thr Trp Pro Cys Thr Ala Leu Phe Ser Leu Leu Phe Ile Pro
 20 25 30

gtc ttc tcc aaa ggg atg cat gtg gct cag cct gca gtg gtt ctg gcc 203
 Val Phe Ser Lys Gly Met His Val Ala Gln Pro Ala Val Val Leu Ala
 35 40 45

agc agc cgg ggt gtt gct agc ttc gtg tgt gaa tat ggg tct tca ggc 251
 Ser Ser Arg Gly Val Ala Ser Phe Val Cys Glu Tyr Gly Ser Ser Gly
 50 55 60

aac gca gcc gag gtc cgg gtg aca gtg ctg cgg cag gct ggc agc cag 299
 Asn Ala Ala Glu Val Arg Val Thr Val Leu Arg Gln Ala Gly Ser Gln
 65 70 75 80

atg act gaa gtc tgt gcc gcg aca tac aca gtg gag gat gag ttg gcc 347
 Met Thr Glu Val Cys Ala Ala Thr Tyr Thr Val Glu Asp Glu Leu Ala

85	90	95	
ttc ctg gat gat tct acc tgc acc ggc acc tcc agt gga aac aaa gtg			395
Phe Leu Asp Asp Ser Thr Cys Thr Gly Thr Ser Ser Gly Asn Lys Val			
100	105	110	
aac ctc acc atc caa ggg ttg agg gcc atg gac acg ggg ctc tac atc			443
Asn Leu Thr Ile Gln Gly Leu Arg Ala Met Asp Thr Gly Leu Tyr Ile			
115	120	125	
tgc aag gtg gag ctc atg tac cca cca ccc tac tat gta ggc atg gga			491
Cys Lys Val Glu Leu Met Tyr Pro Pro Pro Tyr Tyr Val Gly Met Gly			
130	135	140	
aat gga acc cag att tat gtc atc gat cct gaa cct tgc cca gat tct			539
Asn Gly Thr Gln Ile Tyr Val Ile Asp Pro Glu Pro Cys Pro Asp Ser			
145	150	155	160
gac ttc ctc ctc tgg atc ctt gca gca gtc agt tcg ggc ttg ttt ttt			587
Asp Phe Leu Leu Trp Ile Leu Ala Ala Val Ser Ser Gly Leu Phe Phe			
165	170	175	
tat agc ttt ctt atc aca gct gtt tct ttg agc aaa atg cta aag aaa			635
Tyr Ser Phe Leu Ile Thr Ala Val Ser Leu Ser Lys Met Leu Lys Lys			
180	185	190	
aga agc cct ctt acc aca ggg gtc tat gtg aaa atg ccc cca act gag			683
Arg Ser Pro Leu Thr Thr Gly Val Tyr Val Lys Met Pro Pro Thr Glu			
195	200	205	
cca gaa tgt gaa aag caa ttt cag cct tat ttt att ccc atc aat tga			731
Pro Glu Cys Glu Lys Gln Phe Gln Pro Tyr Phe Ile Pro Ile Asn			
210	215	220	
gagatcatta tgaagaagaa agaatatattt ccaatttcca ggagctgagg caattctaac 791			
tttgtgctat ccagctatgt gtacttgttt gtatatatttg gggggggttt catctctctt 851			
taatataaag ctggatgcag aaccctaatg aagtgtacta caaattcaaa gcaaagggtgc 911			
aagaaaacag agccaggatg tttctgtcac atcagatcca attttcgtaa aagtatcact 971			
tgggagcaat atggggatgc agcattagga catgcgctct aggatatagg ttagggagtg 1031			
gtgcggtcca aagaaagcaa aggagagaga gtcagggaga ggatgatatt gtacacactt 1091			
tgtatttaca tgtgagaagt ttatagctga agtgacgttt tcaagttaaa tttttgtgct 1151			

atgttatttt tcataaatgt aaaatcacgt gaagacttta aaaatattca catggctata 1211
 ttttagccag tgattccaaa gggtgtattg taccaatata tatttttttta tctgatagta 1271
 ttatgcatgg gggccacatg tgcttttgtg tatttggtga tggtttcaat ataaacacta 1331
 tatggcagtg tcttcccacc aggggctcag gggaagtttt atggagggat tcaggacact 1391
 aatacgccag gtaaaataca aggtcacttg gtaactggct tggaaactgg atgagggtcat 1451
 agttgattct tgtagacgtg ttgggctaaa ttggtggtga catgtgcttt gggtttttat 1511
 gttagctcct ttcaaagatt tgtaaggag tcaaaactgg tatatctgat ttaactccat 1571
 agaacaccat cgtcaagtaa acgggtcatt ccaggagtct tggagggtatg aacttcaagg 1631
 aagctctagt ttcacaaggg cccaattcc ttgctcatgg ttaatgccat gggcagaaaa 1691
 cagcagcagg tggcagaaca gggatgaa ggtttccgaa aacaaacact gttggtgttt 1751
 ttttaactca ctattttctg tgaaaatgca acaacatgta taatattttt aattaaataa 1811
 aaatctgtgg tggtcattaa aaaaaaaaaa aaaaaaaaaa aaaaa 1856

<210> 42

<211> 223

<212> PRT

<213> Canis familiaris

<400> 42

Met Ala Gly Phe Gly Phe Arg Arg His Gly Ala Gln Pro Asp Leu Ala
 1 5 10 15

Ser Arg Thr Trp Pro Cys Thr Ala Leu Phe Ser Leu Leu Phe Ile Pro
 20 25 30

Val Phe Ser Lys Gly Met His Val Ala Gln Pro Ala Val Val Leu Ala
 35 40 45

Ser Ser Arg Gly Val Ala Ser Phe Val Cys Glu Tyr Gly Ser Ser Gly
 50 55 60

Asn Ala Ala Glu Val Arg Val Thr Val Leu Arg Gln Ala Gly Ser Gln
 65 70 75 80

Met Thr Glu Val Cys Ala Ala Thr Tyr Thr Val Glu Asp Glu Leu Ala
 85 90 95

Phe Leu Asp Asp Ser Thr Cys Thr Gly Thr Ser Ser Gly Asn Lys Val
 100 105 110
 Asn Leu Thr Ile Gln Gly Leu Arg Ala Met Asp Thr Gly Leu Tyr Ile
 115 120 125
 Cys Lys Val Glu Leu Met Tyr Pro Pro Pro Tyr Tyr Val Gly Met Gly
 130 135 140
 Asn Gly Thr Gln Ile Tyr Val Ile Asp Pro Glu Pro Cys Pro Asp Ser
 145 150 155 160
 Asp Phe Leu Leu Trp Ile Leu Ala Ala Val Ser Ser Gly Leu Phe Phe
 165 170 175
 Tyr Ser Phe Leu Ile Thr Ala Val Ser Leu Ser Lys Met Leu Lys Lys
 180 185 190
 Arg Ser Pro Leu Thr Thr Gly Val Tyr Val Lys Met Pro Pro Thr Glu
 195 200 205
 Pro Glu Cys Glu Lys Gln Phe Gln Pro Tyr Phe Ile Pro Ile Asn
 210 215 220

<210> 43

<211> 1856

<212> DNA

<213> Canis familiaris

<400> 43

tttttttttt tttttttttt tttttttaat gaccaccaca gattttttatt taattaaaaa 60
 tattatacat gttgttgcat tttcacagaa aatagtgagt taaaaaaaca ccaacagtgt 120
 ttgttttcgg aaaccttcat caccctgttc tgccacctgc tgctgttttc tgcccatggc 180
 attaaccatg agcaaggaat tggggccctt gtgaaactag agcttccttg aagttcatac 240
 ctccaagact cctggaatga gccgtttact tgacgatggt gttctatgga gttaaatcag 300
 atataccagt ttgactccc ttacaaatct ttgaaaggag ctaacataaa agcccaaagc 360
 acatgtcaac accaatttag cccaacacgt ctacaagaat caactatgac ctcatccagt 420
 ttccaagcca gttaccaagt gaccttgtat ttacctggc gtattagtgt cctgaatccc 480

tccataaaac ttcccctgag cccctggtgg gaagacactg ccatatagtg tttatattga 540
aaccatcaac aaatacacia aagcacatgt ggcccccatg cataatacta tcagataaaa 600
aaatatatat tgggtacaata caacctttgg aatcactggc taaaatatag ccatgtgaat 660
atttttaaag tcttcacgtg attttacatt tatgaaaaat aacatagcac aaaaatttaa 720
cttgaaaacg tcacttcagc tataaacttc tcacatgtaa atacaaagtg tgtacaatat 780
catcctctcc ctgactctct ctcccttggc ttctttggac cgcaccactc cctaacctat 840
atcctagagc gcatgtccta atgctgcac cccatattgc tccaagtga tacttttacg 900
aaaattggat ctgatgtgac agaaacatcc tggctctggt ttcttgcacc tttgctttga 960
attttagta cacttcattt gggttctgca tccagcttta tattaaagag agatgaaacc 1020
cccccaaaa tatacaaaca agtacacata gctggatagc acaaagttag aattgcctca 1080
gctcctggaa attggaaaat attctttctt cttcataatg atctctcaat tgatgggaat 1140
aaaataaggc tgaaattgct tttcacattc tggctcagtt gggggcattt tcacatagac 1200
ccctgtggtg agagggcttc ttttcttttag cattttgctc aaagaaacag ctgtgataag 1260
aaagctataa aaaaacaagc ccgaactgac tgctgcaagg atccagagga ggaagtcaga 1320
atctgggcaa ggttcaggat cgatgacata aatctgggtt ccatttccca tgccacata 1380
gtaggggtgt ggggtacatga gctccacctt gcagatgtag agccccgtgt ccatggccct 1440
caacccttgg atggtgaggt tcactttggt tccactggag gtgccgggtgc aggtagaatc 1500
atccaggaag gccaaactcat cctccactgt gtatgtcgcg gcacagactt cagtcatctg 1560
gctgccagcc tgccgcagca ctgtcaccgc gacctgggt gcgttgccctg aagaccata 1620
ttcacacacg aagctagcaa cccccggct gctggccaga accactgcag gctgagccac 1680
atgcatccct ttggagaaga cggggataaa gagaagagaa aacagagcag tgcagggcca 1740
ggtcctagaa gccaggtccg gctgagcccc atgcctccgg aatccaaagc cagccatggc 1800
tttatggagc agtggttcagg tcttcaggaa gcagagtgaac acctttcagg atcctg 1856

<210> 44

<211> 669

<212> DNA

<213> Canis familiaris

<400> 44

atggctggct ttggattccg gaggcattgg gctcagccgg acctggcttc taggacctgg 60
 ccctgcactg ctctgttttc tcttctcttt atccccgtct tctccaaagg gatgcatgtg 120
 gctcagcctg cagtggttct ggccagcagc cgggggtgtg ctagcttcgt gtgtgaatat 180
 ggggtcttcag gcaacgcagc cgaggtccgg gtgacagtgc tgcggcaggc tggcagccag 240
 atgactgaag tctgtgccgc gacatacaca gtggaggatg agttggcctt cctggatgat 300
 tctacctgca ccggcacctc cagtggaaac aaagtgaacc tcaccatcca agggttgagg 360
 gccatggaca cggggctcta catctgcaag gtggagctca tgtaccacc accctactat 420
 gtaggcatgg gaaatggaac ccagatttat gtcatcgatc ctgaaccttg ccagattct 480
 gacttctcc tctggatcct tgcagcagtc agttcgggct tgttttttta tagctttctt 540
 atcacagctg tttctttgag caaaatgcta aagaaaagaa gccctcttac cacaggggtc 600
 tatgtgaaaa tgcccccaac tgagccagaa tgtgaaaagc aatttcagcc ttattttatt 660
 cccatcaat 669

<210> 45

<211> 669

<212> DNA

<213> Canis familiaris

<400> 45

attgatggga ataaaataag gctgaaattg cttttcacat tctggctcag ttgggggcat 60
 tttcacatag acccctgtgg taagagggtt tcttttcttt agcattttgc tcaaagaaac 120
 agctgtgata agaaagctat aaaaaaacia gcccgaaactg actgctgcaa ggatccagag 180
 gaggaagtca gaatctgggc aaggttcagg atcgatgaca taaatctggg ttccatttcc 240
 catgcctaca tagtaggggtg gtgggtacat gagctccacc ttgcagatgt agagccccgt 300
 gtccatggcc ctcaaccctt ggatggtgag gttcactttg tttccactgg aggtgccggt 360

gcaggtagaa tcatccagga aggccaactc atcctccact gtgtatgtcg cggcacagac 420
 ttcagtcatc tggctgccag cctgccgcag cactgtcacc cggacctcgg ctgcgttgcc 480
 tgaagaccca tattcacaca cgaagctagc aacaccccgg ctgctggcca gaaccactgc 540
 aggctgagcc acatgcatcc ctttgagaa gacggggata aagagaagag aaaacagagc 600
 agtgcagggc caggtcctag aagccaggtc cggctgagcc ccatgcctcc ggaatccaaa 660
 gccagccat 669

<210> 46
 <211> 1883
 <212> DNA
 <213> Felis catus

<220>
 <221> CDS
 <222> (69)..(740)

<400> 46
 caaagcttca ggatcctgaa aggtttcact ctgcttcctg aagacctgaa cactgctccc 60
 ataaagcc atg gct tgc ttt gga ttc cgg agg cat ggg gct cag ctg gac 110
 Met Ala Cys Phe Gly Phe Arg Arg His Gly Ala Gln Leu Asp
 1 5 10
 ctg gct tct agg acc tgg ccc tgc act gct ctg ttt tct ctt ctc ttt 158
 Leu Ala Ser Arg Thr Trp Pro Cys Thr Ala Leu Phe Ser Leu Leu Phe
 15 20 25 30
 atc ccc gtc ttc tcc aaa ggg atg cat gtg gcc cag cct gca gtg gtg 206
 Ile Pro Val Phe Ser Lys Gly Met His Val Ala Gln Pro Ala Val Val
 35 40 45
 ctg gcc agc agc cga ggt gtc gcc agc ttc gtg tgt gaa tat ggg tct 254
 Leu Ala Ser Ser Arg Gly Val Ala Ser Phe Val Cys Glu Tyr Gly Ser
 50 55 60
 tca ggc aat gcc gcc gaa gtc cga gtg act gtg ctg agg cag act ggc 302
 Ser Gly Asn Ala Ala Glu Val Arg Val Thr Val Leu Arg Gln Thr Gly
 65 70 75
 agc cag atg act gaa gtc tgt gct gcg aca tac aca gtg gag aat gag 350
 Ser Gln Met Thr Glu Val Cys Ala Ala Thr Tyr Thr Val Glu Asn Glu
 80 85 90

ttg gcc ttc cta gat gat tcc acc tgc act ggc atc tcc agc gga aac 398
 Leu Ala Phe Leu Asp Asp Ser Thr Cys Thr Gly Ile Ser Ser Gly Asn
 95 100 105 110

aaa gtg aac ctc acc atc caa ggg ttg agg gcc atg gac acg gga ctc 446
 Lys Val Asn Leu Thr Ile Gln Gly Leu Arg Ala Met Asp Thr Gly Leu
 115 120 125

tac atc tgc aag gtg gag ctc atg tac cca cca ccc tac tat gca ggc 494
 Tyr Ile Cys Lys Val Glu Leu Met Tyr Pro Pro Pro Tyr Tyr Ala Gly
 130 135 140

atg ggc aat gga acc cag att tat gtc atc gat cct gaa cct tgc cca 542
 Met Gly Asn Gly Thr Gln Ile Tyr Val Ile Asp Pro Glu Pro Cys Pro
 145 150 155

gat tct gac ttc ctc ctc tgg atc ctc gca gca gtc agt tca gga ttg 590
 Asp Ser Asp Phe Leu Leu Trp Ile Leu Ala Ala Val Ser Ser Gly Leu
 160 165 170

ttt ttt tat agc ttc ctt atc aca gct gtt tct ttg agc aaa atg cta 638
 Phe Phe Tyr Ser Phe Leu Ile Thr Ala Val Ser Leu Ser Lys Met Leu
 175 180 185 190

aag aaa aga agc cct ctt act aca ggg gtc tat gtg aaa atg ccc cca 686
 Lys Lys Arg Ser Pro Leu Thr Thr Gly Val Tyr Val Lys Met Pro Pro
 195 200 205

aca gag cca gaa tgt gaa aag caa ttt cag cct tat ttt att ccc atc 734
 Thr Glu Pro Glu Cys Glu Lys Gln Phe Gln Pro Tyr Phe Ile Pro Ile
 210 215 220

aat tga cacaccgtta tgaagaagga agaacactgt ccaatttcta agagctgagg 790
 Asn

caattctaac tttttgctat ccagctatgt tgcttatttg tgtatttttg ggggggattc 850

atctctcttt aatataaagc tggatgcaaa atccagatga agtgtactac aatttgaagc 910

aaagggtgcag gaaaacagag ccaggatggt tctgtcacat cagatccaat tttagtaaaa 970

gcatcactcg ggagcaatat agggatgcag tcttacgttg taggtgaagg atatgggtta 1030

gggggtggtg ctgtccaaaag aatacaaaagg aagagagtta gggagaggat gatattgtac 1090

acactttgta tttacacatg agaagtttat agctgaagtg atgttttcaa gttaaagttt 1150

tgtgctgtta tttttcttaa atgtggaatt acatgaagac tttaaaaata ctcacgtggc 1210
 tatatttttag ccagtgattc caaagggtgt attgtaccaa tatgtatttt tttttatttg 1270
 atagtattgt gcatggggac cacatgtgct tttgtgtatt tgctgatggg tttaatataa 1330
 acactatatg gcagtgctctt cccaccatgg gttcagggga agttttatgg aggggctcag 1390
 gacactaata caccaggtag aacacaaagt cacttggtta ctggcttgga aactggctga 1450
 ggtcataact gattcttata gacacgttga gctgaattgg tgttgacatg tgatttgggc 1510
 ttttatgtta gtcctttca aaggtttgca agggagtcca gactgggtga tctgatgtaa 1570
 ttcaatagaa caccaacctc aagaaaatgg ctcactccag gggctctgta ggtacgaact 1630
 tcaaggaagc tctagtttca caagggcccc aattcctaac acatggttca tgccatggac 1690
 agaaaaaagc agccggtggc agaacggggg gatgaaagtt tctaaaaact aacactggtg 1750
 gtgtttttta actcattatt ttccatgaaa atgcaacaac atgtataata tttttaatta 1810
 aataaaaaatc tgtggtgggc aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa 1870
 aaaaaaaaaa aaa 1883

<210> 47
 <211> 223
 <212> PRT
 <213> Felis catus

<400> 47
 Met Ala Cys Phe Gly Phe Arg Arg His Gly Ala Gln Leu Asp Leu Ala
 1 5 10 15
 Ser Arg Thr Trp Pro Cys Thr Ala Leu Phe Ser Leu Leu Phe Ile Pro
 20 25 30
 Val Phe Ser Lys Gly Met His Val Ala Gln Pro Ala Val Val Leu Ala
 35 40 45
 Ser Ser Arg Gly Val Ala Ser Phe Val Cys Glu Tyr Gly Ser Ser Gly
 50 55 60
 Asn Ala Ala Glu Val Arg Val Thr Val Leu Arg Gln Thr Gly Ser Gln
 65 70 75 80

Met Thr Glu Val Cys Ala Ala Thr Tyr Thr Val Glu Asn Glu Leu Ala
 85 90 95

Phe Leu Asp Asp Ser Thr Cys Thr Gly Ile Ser Ser Gly Asn Lys Val
 100 105 110

Asn Leu Thr Ile Gln Gly Leu Arg Ala Met Asp Thr Gly Leu Tyr Ile
 115 120 125

Cys Lys Val Glu Leu Met Tyr Pro Pro Pro Tyr Tyr Ala Gly Met Gly
 130 135 140

Asn Gly Thr Gln Ile Tyr Val Ile Asp Pro Glu Pro Cys Pro Asp Ser
 145 150 155 160

Asp Phe Leu Leu Trp Ile Leu Ala Ala Val Ser Ser Gly Leu Phe Phe
 165 170 175

Tyr Ser Phe Leu Ile Thr Ala Val Ser Leu Ser Lys Met Leu Lys Lys
 180 185 190

Arg Ser Pro Leu Thr Thr Gly Val Tyr Val Lys Met Pro Pro Thr Glu
 195 200 205

Pro Glu Cys Glu Lys Gln Phe Gln Pro Tyr Phe Ile Pro Ile Asn
 210 215 220

<210> 48
 <211> 1883
 <212> DNA
 <213> Felis catus

<400> 48
 tttttttttt tttttttttt tttttttttt tttttttttt tttttttttt tttgaccacc 60
 acagattttt atttaattaa aaatattata catgttggtg cattttcatg gaaaataatg 120
 agttaaaaaa caccaacagt gtagttttt agaaactttc atcaccctgt tctgccaccg 180
 gctgcttttt tctgtccatg gcatgaacca tgtgttagga attggggccc ttgtgaaact 240
 agagcttcct tgaagttcgt acctacaaga ccctggagt gagccatttt cttgagggtg 300
 gtgtttctatt gaattacatc agatacacca gtctggactc ctttgcaaac ctttgaaagg 360
 agctaacata aaagcccaa tcacatgtca acaccaattc agctcaacgt gtctataaga 420

atcagttatg acctcagcca gttccaagc cagttaccaa gtgactttgt gttctacctg 480
gtgtattagt gtcctgagcc cctccataaa acttcccctg aacccatggt gggaagacac 540
tgccatatag tgtttatatt aaaaccatca gcaaatacac aaaagcacat gtggtcccca 600
tgcacaatac tatcaaataa aaaaaaatac atattggtac aatacaacct ttggaatcac 660
tggctaaaat atagccacgt gagtattttt aaagtcttca tgtaattcca catttaagaa 720
aaataacagc acaaaacttt aacttgaaaa catcacttca gctataaact tctcatgtgt 780
aaatacaaag tgtgtacaat atcatcctct ccctaactct cttcctttgt attctttgga 840
cagcaccacc ccctaaccba tatccttcac ctacaacgta agactgcac cctatatgtc 900
tcccagagtga tgcttttact aaaattggat ctgatgtgac agaaacatcc tggctctgtt 960
ttcctgcacc tttgcttcaa attgtagtac acttcatctg gattttgcat ccagctttat 1020
attaaagaga gatgaatccc ccccaaaaat acacaaataa gcaacatagc tggatagcaa 1080
aaagttagaa ttgcctcagc tcttagaaat tggacagtgt tcttccttct tcataacggt 1140
gtgtcaattg atgggaataa aataaggctg aaattgcttt tcacattctg gctctgttgg 1200
gggcattttc acatagacc ctagtagtaag agggcttctt ttcttttagca ttttgctcaa 1260
agaaacagct gtgataagga agctataaaa aaacaatcct gaactgactg ctgcgaggat 1320
ccagaggagg aagtcagaat ctgggcaagg ttcaggatcg atgacataaa tctgggttcc 1380
attgcccattg cctgcatagt aggggtggtg gtacatgagc tccaccttgc agatgtagag 1440
tcccggtgcc atggccctca acccttggtg ggtgagggtc actttgtttc cgctggagat 1500
gccagtgcag gtggaatcat ctaggaaggc caactcattc tccactgtgt atgtcgcagc 1560
acagacttca gtcactctggc tgccagtctg cctcagcaca gtcactcgga cttcggcggc 1620
attgcctgaa gacccatatt cacacacgaa gctggcgaca cctcggctgc tggccagcac 1680
cactgcaggc tgggccacat gcatcccttt ggagaagacg gggataaaga gaagagaaaa 1740
cagagcagtg cagggccagg tcctagaagc caggtccagc tgagcccat gcctccggaa 1800
tccaaagcaa gccatggctt tatgggagca gtgttcaggt cttcaggaag cagagtgaaa 1860

cctttcagga tcctgaagct ttg

1883

<210> 49

<211> 669

<212> DNA

<213> Felis catus

<400> 49

atggcttgct ttggattccg gaggcattggg gctcagctgg acctggcttc taggacctgg 60
ccctgcactg ctctgttttc ttttctcttt atccccgtct tctccaaagg gatgcatgtg 120
gccagacctg cagtgggtgct ggccagcagc cgaggtgtcg ccagcttcgt gtgtgaatat 180
gggtcttcag gcaatgccgc cgaagtccga gtgactgtgc tgaggcagac tggcagccag 240
atgactgaag tctgtgctgc gacatacaca gtggagaatg agttggcctt cctagatgat 300
tccacctgca ctggcatctc cagcggaaac aaagtgaacc tcaccatcca agggttgagg 360
gccatggaca cgggactcta catctgcaag gtggagctca tgtaccacc accctactat 420
gcaggcatgg gcaatggaac ccagatttat gtcactgac ctgaaccttg cccagattct 480
gacttcctcc tctggatcct cgcagcagtc agttcaggat tgttttttta tagcttcctt 540
atcacagctg tttctttgag caaaatgcta aagaaaagaa gccctcttac tacaggggtc 600
tatgtgaaaa tgccccaac agagccagaa tgtgaaaagc aatttcagcc ttattttatt 660
cccatcaat

669

<210> 50

<211> 669

<212> DNA

<213> Felis catus

<400> 50

attgatggga ataaaataag gctgaaattg cttttcacat tctggctctg ttgggggcat 60
tttcacatag acccctgtag taagagggtc tcttttcttt agcattttgc tcaaagaaac 120
agctgtgata aggaagctat aaaaaaaca tcctgaactg actgctgcga ggatccagag 180
gaggaagtca gaatctgggc aagggtcagg atcgatgaca taaatctggg ttccattgcc 240

catgcctgca tagtaggggtg gtgggtacat gagctccacc ttgcagatgt agaqtcccgt 300
 gtccatggcc ctcaaccctt ggatgggtgag gttcactttg tttccgctgg agatgccagt 360
 gcagggtggaa tcatctagga aggccaactc attctccact gtgtatgtcg cagcacagac 420
 ttcagtcata tggtgccag tctgcctcag cacagtcact cggacttcgg cggcattgcc 480
 tgaagaccca tattcacaca cgaagctggc gacacctcgg ctgctggcca gcaccactgc 540
 aggctggggc acatgcatcc ctttggagaa gacggggata aagagaagag aaaacagagc 600
 agtgcagggc caggtcctag aagccaggtc cagctgagcc ccatgcctcc ggaatccaaa 660
 gcaagccat 669

<210> 51
 <211> 20
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic
 Primer

<400> 51
 atacaagggtt acccagaacc 20

<210> 52
 <211> 20
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic
 Primer

<400> 52
 tgtgtagtac ttttgtcgcc 20

<210> 53
 <211> 34
 <212> DNA
 <213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
Primer

<400> 53

gggaattcgc caccatgggt cacgcagcaa agtg

34

<210> 54

<211> 28

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
Primer

<400> 54

ccctcgagct atgtagacag gtgagatc

28

<210> 55

<211> 22

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
Primer

<400> 55

gtaatacgac tcactatagg gc

22

<210> 56

<211> 20

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
Primer

<400> 56

accactccat tgtgatcatg

20

<210> 57

<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
Primer

<400> 57
gtcttgatct cagggtcatg 20

<210> 58
<211> 31
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
Primer

<400> 58
gcggatccac catgggcatt tgtgacagca c 31

<210> 59
<211> 33
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
Primer

<400> 59
gcctcgagtt aaaaatgtgt agtacttttg tcg 33

<210> 60
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
Primer

<400> 60

gtgaacctsa cyatccaagg

20

<210> 61
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
Primer

<400> 61
gcattttcac atagaccct g

21

<210> 62
<211> 27
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
Primer

<400> 62
ggtacgtagg gatgcatgtg gctcagc

27

<210> 63
<211> 32
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
Primer

<400> 63
ccgaattctc agtcagaatc tgggcaaggt tc

32

<210> 64
<211> 28
<212> DNA
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
Primer

<400> 64

ggtacgtagg tgctgcttcc atgaagag

28

<210> 65

<211> 35

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
Primer

<400> 65

cccctagggtt aaaactgtgt agtactgttg tcgcc

35